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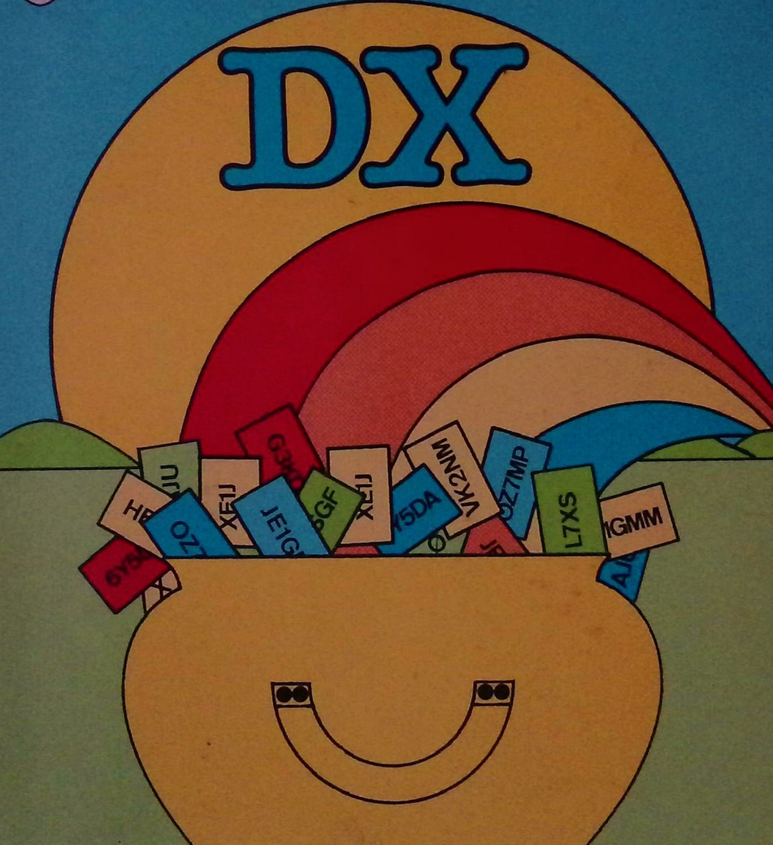
The COMPLETE IDIOT'S GUIDE to

DX



BY STUART GREGG
NF4Z

The Complete Idiot's Guide to DX

by

Stuart Gregg III - NF4Z

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ABOUT THE AUTHOR

Stuart Gregg III, who is 38, was born in Tennessee and grew up in South Carolina, North Carolina, Louisiana and Connecticut. He attended college at the Institut de Touraine, Tours, France, and the University of North Carolina at Chapel Hill, later earning an M.A. degree in anthropology at Duke University. Commissioned as a naval officer in 1966, he had two eventful tours to Viet Nam, one afloat and the other ashore. Stuart got his Novice license in 1957 and, three months later, at the age of 13, became licensed as a General Class operator with the call sign K5KMQ. He began chasing DX in earnest after moving to Connecticut where he operated under the call sign K1IJG. During three years of high school there he contacted 220 countries and confirmed a majority of them, mostly on 20 meter CW. After an 18 year absence from amateur radio he started over in 1979 as K4IPS. In 1980 he became licensed as an Advanced Class and then as an Extra Class. His awards include DXCC, WAZ, WPX, WAC, WAS, BCRTA IARU REGION I (Class 2), WBC, ONE WEEK ALL JAPAN PREFIXES (Class 2) and 8PX (Class 3). Stuart's station consists of a Drake TR4-C, a Dentron MT3000A antenna tuner, a Dentron Clipperton-L linear, a Collins 75A-4, and a 2 element Cubex tri-band quad up 51 feet.

Although a very enthusiastic DXer, Stuart does spend some time ragchewing on 40 and 75 meters. He says he loves a good ragchew and, besides, is not yet bent enough to start chasing awards like 5BDXCC (Five Band DX Century Club) or 5BWAZ (Five Band Worked All Zones).

In addition to his interests in ham radio, Stuart holds a commercial pilot's license with multi-engine and instrument ratings. He is also SCUBA certified and has a commercial deep sea diving rating.

Currently residing at Hilton Head Island, South Carolina he has published in numerous magazines including *Audubon, Oceans,* and *Islander*.

Stuart and his wife Linda own a light aircraft and like to fly it down to the Caribbean on diving trips. They both love to hunt and fish but acknowledge that they are the lousiest fishermen in their area.

PREFACE

Have you recently caught yourself thinking that you're weary of ho-hum domestic QSO's? Are you no longer thrilled to learn of the weather in Possum Walla, Georgia or about ole Finster's moldy old rig and dipole over East Codbones, Massachussetts way? Worse, do your eyes dim to mere pinpricks when Bombastic Barney drones on about the nation's ills on the two meter net every night? And do you get a little rush whenever you tune 20, 15 and 10 meters and hear U.S. stations batting off QSO after QSO with other stations with strange prefixes in all sorts of exotic places?

Well, if any or all of these thoughts have crossed your mind at one time or another, then the chances are that you have thought wistfully that you would like to be a part of these exciting doings. In other words, the "DX bug" is crawling about in some recess of your mind not already fried by too much exposure to the likes of ole Finster and Barney. So, here you have this repressed wish but in your case it's likely to remain repressed because you really don't know ding-dong about DX, right? Well, no more! This manual is designed to bridge that little gap in your education and to do so clearly, with a minimum of the usual hocus-pocus surrounding the subject.

Why not look at today as your first day in a whole new aspect of ham radio? Turn the page, then, and let's get started.

Stuart Gregg III - NF4Z
Hilton Head Island, S.C.

ACKNOWLEDGEMENTS

When my publisher, Bash Educational Services, and I agreed that this book should be written, there was little appreciation on my part for the assistance that would be required in order to complete the task.

So, thanks first to my wife, Linda, who hasn't the slightest interest in amateur radio but who shares many other interests with me. Without her patience and support, this book would not have been possible.

Thanks and gratitude to my close friend Jack Rudloe, who also cares not a whit about amateur radio, for the inspiration to undertake this much writing (Jack is a distinguished writer whose many books deal chiefly with the marine environment).

Jack Sanders, K1IFJ, Editor of *The Ridgefield* (Connecticut) *Press,* virtually wrote the chapters on *The Art of QSLing, Language and DX,* and *80 Meter DXing* and has my deep appreciation for his contribution. It is fitting that Jack should have helped me thus, because he was my arch-rival in the "DX Wars" of my teen years. Also in this regard, a bow to our mutual friend, Andy Ponzini (ex-WA2AYM now VE7AHA, a DX) who was trounced and who also trounced Jack and I in various 20 meter CW pile-ups.

To Charles J. Ellis, PhD, a special acknowledgement for his permission to use material from his authoritative *DX Awards Guide* in order to produce the chapter on DX awards (and also, unbeknownst to the two of us until twenty years has passed and I had begun to write this book, for permission and the opportunity to party with my class on his front lawn during my Junior year at Ridgefield High School).

Thanks to my illustrator, Elizabeth McLendon, a special friend whose thoughts and talent helped bring this work to completion.

Thanks also to Bill Mattil, WB6SHL, for some insights on QSL-

ing and to Ed Reinberg, W6JI, for a contribution on how to deal with a pile-up.

Finally, thanks to the editors of *CQ, 73* and *QST* magazines for material incorporated into the *DX Awards Guide* chapter and the chapter on DX contests.

POWER = DX: *THE MAJOR MISCONCEPTION*

If you are like most new amateur radio operators (and some more experienced ones), you are probably aware that there are some members of our fraternity who contact hordes of DX stations month after month, year in and year out. You may have seen photographs of them and their stations in the pages of *CQ* and *73 Magazine* and noted that the walls of their shacks are plastered with what appear to be reams of impressive looking awards. You also note that many of the rigs look pretty formidable and, consciously or subconsciously, reach the conclusion that super-sophisticated equipment and oceans of power are a major part of the DX game. But you are not right on the mark! Look again through those same pages and you will find some grainy photographs of quite ordinary looking people grimacing at the camera or hunched over a miniature box or two, key or microphone in hand. Read the caption under the photo or check the lists elsewhere in the magazines and, invariably, you will note that he or she has recently racked up some incredible score in a worldwide DX contest or has otherwise achieved something noteworthy with respect to DX operating. What you are looking at, my friend, is a skilled DX operator - someone who, through *painstaking trial and error,* taught himself the techniques necessary to do the job.

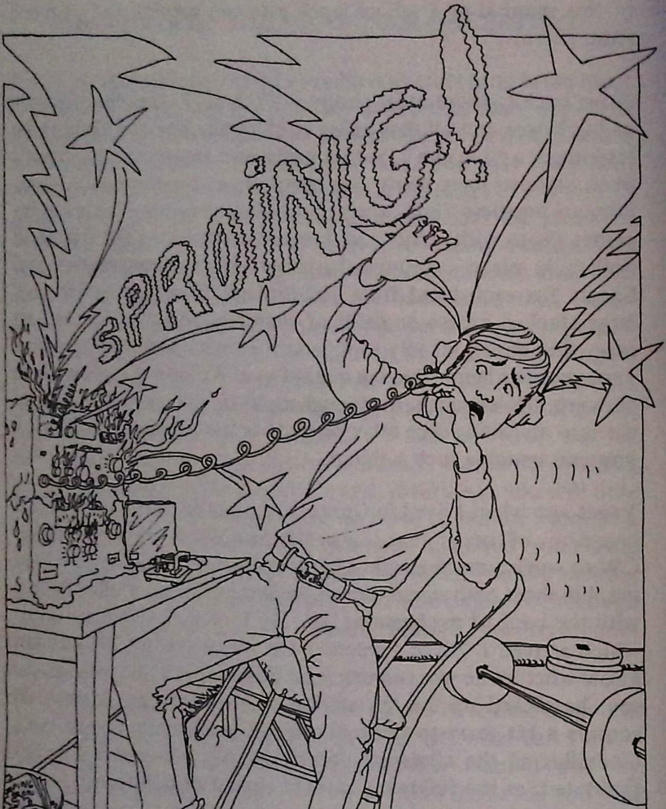
"Okay, good for him", you say, "but I don't have time for it and who wants to go through all that anyway? So, what can I do?" You begin by reading and digesting this manual and by understanding that it is nonsense when others try to tell you that trial and error and wading through scads of poorly written, mostly unfathomable (and therefore boring) technical tracts is the only way to get where you want to go. This is a silly and common misconception among amateur radio operators and the sooner this notion disappears the better.

I would be less than frank, however, if I did not add that you must bring some individual inspiration and perspiration to apply the information presented in these pages. Remember what Diamond Jim Brady said? "There ain't no free lunch". So just think of this manual as a school lunch program subsidy and proceed from there.

Now, back to those *other* photos in *CQ* and *73* - the ones with lots of big boxes and all that paper on the wall. You are likely to be looking at a "big gun", as they are known among the DX crowd. Such stations have many fine operators and more than a sprinkling of hopeless "lids" sitting behind the controls. The breed includes those with stations with many multiples of ten thousand dollars in place - stations that have separate transmitters and linears for each band from 160 through 10 meters which feed huge stacked arrays or fields of rhombics and the like. In any case, this bunch all rely to a certain extent upon spewing forth vast, receiver hemorrhaging quantities of RF into the atmosphere to work DX or to smash through a *pile-up* (which is hundreds of stations all calling each other on more or less the same frequency, if you can imagine such a thing).

Years ago when I lived in Connecticut and operated as K1IJG, I heard one of these "guns," a well-known W6, fire up on 20 meter CW to work a much sought after Mediterranean country. So help me, his short path signal pinned the S-meter of my Collins 75A-2 with the back of my beam to him. His long path signal or 'echo' which arrived 1/7th of a second later, was well over S-9. I do not know whether he was running legal power or not but, needless to say, he picked up the DX station on the very first attempt. It sounds a bit scary to think of yourself competing against such Godzillas of the airwaves, doesn't it? But you needn't be intimidated, as the following account should demonstrate.

Again operating K1IJG one morning shortly after the "big gun" incident, I came across a horrendous CW pile-up on 20 meters. Everyone and his relatives were calling JT1AA in Ulan Bator, the capital of Outer Mongolia and just about the rarest country and zone (23) of the era. So many stations were banging away that at least 10 kHz of the band sounded like a continuous roar. The "big guns" were really in there and were giving JT1AA, each other, and everyone else fits. I jumped into this appalling mess myself and tried every trick I knew, but to no avail. I did notice,



His long path signal... was well over S-9.

however, that because of propagation and superior operator skills that JT1AA was picking up quite a few stations that were definitely not in the "big gun" category. After 30 minutes or so I left the furor and tuned down the band to hear what else might be around. Somewhere near 14.020 MHz I heard a thin, watery signal send off VVV . . pause . . . VVV . "Hmmm," I thought, "sounds like something from the JT1's neck of the woods, possibly Siberia, UA0." Then it happened...VVV...VVV... DE JT1AB JT1AB AR K. My heart jumped into my throat as I zero beat him and rapped out a medium speed 2 X 2 call. Pause. Then I heard, K1IJG DE JT1AB RR OM TNX CALL - UR RST 559 559. QTH ULAN BATOR ULAN BATOR ES NAME IS ANTON ANTON HW NW? K1IJG DE JT1AB KN. I could scarcely believe it - here was only the second amateur operator to ever broadcast from Outer Mongolia and I had him all to myself.

This happened about 1960 and I still have his somewhat faded QSL card and, although it is not among the most beautiful in my collection, it is my pride and joy. It literally earned my WAZ (Worked All Zones - more of which later). CW WAZ certificate #4700 now rests securely on one wall of my shack and thank goodness it does because I have never managed to confirm another zone 23 contact.

My station at the time of the encounter with JT1AB was an ancient Eldico TR1-TV transmitter with a 4E27 in the final amplifier and it was usually run at 150 watts input. The receiver was a Collins 75A-2 and the antenna a homebrew 2 element 20 meter beam. Before that I had worked DX with a Globe Scout which could manage 65 watts input, a dipole antenna, and my real weak spot, a Halicrafters S-53A, which was little better than a general broadcast band receiver with HF thrown in.

This should serve to illustrate the falsehood of the major preconception harbored by would-be DX'ers - that you need thousands of dollars worth of gear and loads of power to get the job done. If my personal experience is not quite good enough, get a load of this - there is an award, DXCC MILLIWATT, sponsored by the *National Journal of QRPp,* which means that you must work and confirm 100 countries "with all levels of power indication reading less than one watt output." As incredible as it may seem, England's G4BUE won the QRP section (5 watts input or less) of the 1979 CQ World Wide DX Contest, the biggest and most competitive of all such contests with 481,347 points. He made 923 contacts in a 48 hour period and if you *total* the zones and countries he worked on all bands, he worked 63 of the former and 174 of the latter. His QSO average for the contest was just over 19 per hour or about one DX contact every three minutes. With that tidbit, I rest my case.

LEARN YOUR PREFIXES AND GEOGRAPHY

Let's face it, you're *not* going to have a very swell time chasing DX if you don't know what the hoot you're listening to. Imagine hearing an LX3 or a PZ1 or a TU4 and there you are fumbling around with some list or other. By the time that you learn that the LX3 is in the country of ~~Liechtenstein~~ LUXEMBOURG in Europe, the PZ1 is the country of Surinam in South America, or the TU4 is the Ivory Coast in Africa, someone else will probably have nabbed him. The first two countries are moderately rare and the last one quite so. I can almost guarantee that if you are among the first two or so stations to work any of them that a pile-up of some sort will develop and, believe me, you don't need that when you have just started your DX career. Worse, let's say that your station is equipped with a highly directional Yagi or quad. Where, then, do you point the thing? Get the picture?

Before you start roaming the DX bands with any serious intent, you must accept the fact that you should know your countries and their prefixes and also what continents they're on.

A delightful side benefit of storing this very useful information in your head is that you will automatically become among the 99th percentile in the nation insofar as knowledge of geographical locations is concerned. This is so because John Q. Public is appallingly ignorant of such matters. So, imagine being able to rattle off the 18 major subdivisions of the U.S.S.R. (which also count as 18 separate countries) or knowing where the heck the likes of Willis Island (VK9, several hundred miles northeast of Australia) or Minami Torishima (JD1, roughly 1500 miles southeast of Tokyo in the Pacific) might be located.

Now, let's examine how best to learn your prefixes, countries, zones, and continents. To begin with you are going to need some publications and they are:

1. Foreign Radio Amateur Callbook
2. Radio Amateurs Prefix Map of the World
3. Radio Amateurs Great Circle Chart of the World

4. Radio Amateurs Map of North America
5. The Radio Amateurs World Atlas

These publications may be ordered from your local dealer or:

Radio Amateur Callbook, Inc.
925 Sherwood Drive
Lake Bluff, Illinois 60044
Phone: (312) 234-6600

Of the publications listed, it is not essential to have any except the *Foreign Radio Amateur Callbook.* The least important of the remaining publications are Radio Amateurs Map of North America and the Radio Amateurs World Atlas. If you do decide to order the three maps, however, the Atlas is thrown in free. I am reluctant to list individual prices because they may no longer apply when this manual is published. As of this writing all five manuals cost about $25.00, shipping not included.

The *Foreign Radio Amateur Callbook* is essential to your being able to confirm many of your DX contacts and the first 25 or so pages provide information invaluable to you including:

1. ARRL Countries List
2. DX Operating Code
3. Radio Amateur Prefixes Arranged Alphabetically by Prefix
4. Radio Amateur Prefixes Arranged Alphabetically by Country
5. World Map Showing Radio Amateur Prefixes (which is the same map as in the publication list only scaled down and one color instead of four)
6. World Time Conversion Chart in Hours
7. World Wide QSL Bureaus

Most importantly it lists individual call signs and addresses under the prefix headings in the main body of the book. Where no individual address is given, you will be given the name of the incoming QSL bureau of the country concerned. Also listed will be the continent, zone, and ITU zone. For example, let's say you work F1AAA. Turn to F in the DX Callbook and you find:

F - FRANCE
Europe - Zone 14 - ITY Zone 27
Cards May Be Sent Via REF QSL
Service 2 Square Trudaine,
75009, Paris, France, Europe

Under F1AAA:

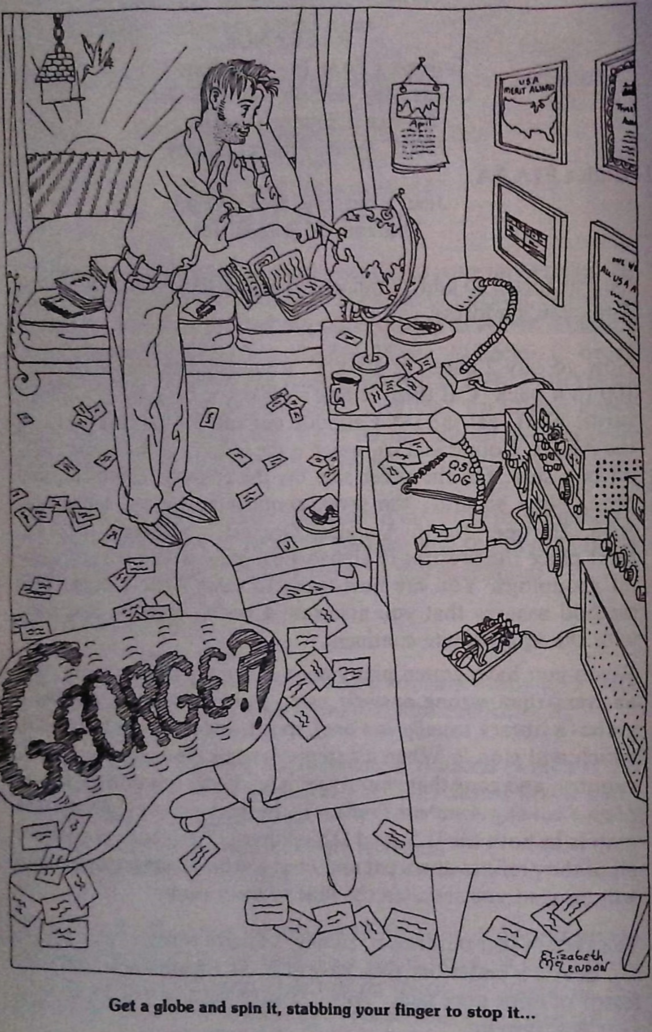
Jean Rousseau, Rue du Port
Thureau, 16 Angouleme

Do not forget to add "France" (in capital letters) after Monsieur Rousseau's address.

Now go buy 2 packs of 3" X 5" white index cards, which come 100 to a pack. Cut them in half so that you have 400 3" X 2½" cards. Next, get the DX Callbook out and list the first prefix of the ARRL Countries List, which is the country of Botswana (A2), on one side. On the other side list the country, continent, and zone. Now separate the seven continents: Africa, Antarctica, Asia, Europe, North America, Oceania, and South America. Next place the prefixes in alphabetical order within the continental groupings. You are now ready to study these groups. This method assures that you associate a prefix, country, and zone with the appropriate continent.

When you have gotten pretty good at coming up with more right answers than wrong answers using your index cards, go find a globe (a library usually has one), spin it, and stab your finger at it, which will stop it. When it's stopped, name the continent, prefix, country, and zone that your finger is on. Verify this with the *World Map Showing Amateur Prefixes* in the front of your *Callbook* (the map is in both the U.S. and DX editions). Pretty soon you'll have all of the prefixes down pat and when you hear them on the air, you will be glad you invested the time to learn them.

The system just outlined is, simply, a system which works. If you can devise a better one then have at it. As a graduate school professor of mine once said, "Any system of learning will do, so long as it *is* a system!"



Get a globe and spin it, stabbing your finger to stop it...

TRY CW FIRST

I'll say it right away: if you can't handle CW with reasonable skill, you are nowhere near being a well-rounded amateur radio operator. This venerable and highly effective means of communication is one half of what separates us from the CB boys. It also makes us a part of the origins of radio broadcasting and the very beginnings of the amateur service. Let's put it another way; an A1 (CW) only operator can become an A3 (phone) operator at the flick of a switch, but an A3 - only operator can't make that claim about A1.

In relation to DX chasing, you are needlessly crippling yourself if you cannot effectively work CW. The reasons are simple:

(1) Most DX operators can and do work both modes thereby increasing your chances of hooking up with them.

(2) Some DX operators work CW exclusively, so it's obvious that you will never work these lads unless you can hack CW.

(3) Under conditions of poor propagation and/or extreme QRM (interference), QRN (static), or QSB (signal fade), you can often communicate via CW when it is impossible on SSB.

(4) There are many DX awards which are given or for which endorsements are given, on the basis of particular modes. For example, my WPX (*W*orked all *P*refi*X*es - no. 1905) and WAZ (*W*orked *A*ll Zones - no. 4700) are both CW awards. Both of these awards could be earned *cross mode* (both CW and voice) or they could be endorsed for AM only if I had used only voice.

If you have recently upgraded from Novice to General Class and truly wish to give DX hunting your best, then do yourself a favor and conduct at least half of your QSO's in the General Class CW bands. This will allow you to hone your CW skills to the point that you can handle the higher speeds present on these bands. If you yield to the temptation to devote a great majority of your time to SSB, all the CW skills that you picked up while you were a

Novice will disappear rapidly. If you hold the General, Advanced, or Extra Class ticket and your skills have withered away, then start over with practice tapes and/or the regularly scheduled code practice runs. Then head back to the CW frequencies until you can once more handle the mode effectively.

In my opinion, you will be able to handle just about any situation you may encounter on the CW DX frequencies if you can comfortably read 20 to 25 words per minute in your head, taking only occasional notes. If you think that this is an exaggeration, you're wrong. Just try keeping up with most any station from the U.S.S.R. - they routinely operate at such speeds.

Above all, work on your fist if it is not up to par. A rotten fist is the sign of a sloppy operator - a turn-off at any sending speed. Many DX operators simply do not answer stations, including other DX stations, that come back sounding as if the other operator was on the tag end of a three day bender. I recommend developing a crisp, machine-like rhythm with a bug or automatic key.

Although I work more SSB than CW these days, I heeded the advice I gave earlier when I passed my General Class test. I made only a few phone QSO's and then headed to 20 meter CW. I worked this band and a few others, and by the time I graduated from high school I had worked over 220 countries. Needless to say, this helped my CW speed to increase.

After high school, it was eighteen years before I returned to ham radio. By then my General Class license, which had once carried every privilege that an amateur operator could possess, had been eroded by time and the FCC such that I was *forced* to take the Advanced and Extra Class exams.

I took the Advanced test in Atlanta, Georgia and found myself, 610 Form in hand, waiting in front of the FCC Office with other upgrade hopefuls. When I casually observed that I had once been quite good at CW, they ganged up on me in a friendly way and said that I should take the Extra Class code test before I sat

A rotten fist is the first sign of a sloppy operator.

for the Advanced theory exam. I protested, positive that my long years off the air had slowed me down too much. But they persisted and with trepidation I took the code test. To my surprise it was just a routine "QSO" and I was able to follow it, although I could not write it down *verbatim*. When the 10 questions concerning the "QSO" were presented, I answered nine of them from my scratch notes and guessed at one of them. To my complete shock, *I passed with 100%!* I then received a code test "marker", meaning that the Advanced and Extra Class theory tests were the only things left between me and my regaining the privileges that I had held those many years before. I suppose that all of those years of cruising the DX frequencies had caused the code to become, in effect, a second language. Once again, do yourself a favor and nail down your CW. Then, as the *Doublemint* gum commercial suggests, you too can "...double your fun."

BASIC FORMAT OF THE DX CONTACT

When you begin to work your first DX, you must realize that there are a few simple rituals that will be an inevitable part of most such contacts. For example, let's say you're Bill - KA8XYZ, and just called CQ DX on 15 meter CW and, by golly, your very first DX station, SP9GK, calls you. Jittery with excitement, you come back to him and give his RST, your QTH, and your name *only* three times (which, by the way, would be a major achievement, in terms of brevity, for most first DX contacts).

Expect something like this in return:

> KA8XYZ DE SP6GK R FB DR OM BILL - RST 559 559 HR IN WROCLAW WROCLAW ES NAME WLAD WLAD - TX HR 100 WATTS ES LONG WIRE ES TEMP 15 C 15 C HW NW? AR KA8XYZ DE SP6GK K

Although you may still be reeling from old Wlad's handle (short for Wladyslaw) and worried that you may not have copied his equally peculiar sounding QTH correctly, you should return more or less like this:

> SP6GK DE KA8XYZ R WLAD ES TU FER FB RPT ES FB UR RIG - RIG HR 200 WATTS ES DIPOLE - TEMP 18 C HW NW? AR SP6GK DE KA8XYZ K

Then you might copy this:

> KA8XYZ DE SP6GK R FB OM BILL TNX FB QSO - NW QRU? 73 73 ES BEST DX, BEST U ES UR FAMILY, HPE CU AGN AR KA8XYZ DE SP6GK K

Your only response at this point goes something like this:

> SP6GK DE KA8XYZ R WLAD OM TNX FB QSO, BEST U ES UR FAMILY, 73 BEST DX, HPE CU AGN AR SP6GK DE KA8XYZ SK DIT DIT.

Then back comes:

SK. . . DIT DIT.

Does this sound vaguely familiar? It should, because this is no more than a somewhat different version of a brief CW contact between two U.S. hams who only wish to log a CW contact while observing the barest of fraternal niceties.

But there are some differences between the above mentioned hypothetical DX exchange and a brief contact between two U.S. amateur stations and the major ones are listed below:

(1) When a DX station addresses you as DR (dear), OM (old man), or OB (old boy), he is *not* being, shall we say, *odd*. Rather, he probably thinks the *DR* is an appropriate form of address among all sexes in the *English* language. This is even more disconcerting when you encounter it in voice! Remember though, it is just politeness on the DX station's part.

(2) The temperature is given in Centigrade (C) and you may as well learn the system since it is becoming increasingly prevalent as the U.S. phases in the metric system. Also, if you state that the temperature at your QTH is 49 without specifying Fahrenheit, your DX buddy may conclude that it is not chilly where you live, but a sweltering 120° *Fahrenheit* instead!

(3) The quick QRU? after the station and temperature information is mostly an attempt to avoid further discussion because many DX stations speak only elementary English and don't want to get in over their heads in a foreign language. After all, how whould you like to make most of your DX QSO's in Polish?

(4) The effusive73's, best DX, best to your family etc. are ways of being friendly without having sufficient English words to express such sentiments more subtly.

(5) The SK DIT DIT business at the end of the QSO is

not, repeat *not*, necessary but is done with deplorable frequency all the same. Please, please don't let go with DITDIDDIDDIT-DIT and expect the infantile little DIT DIT reply! If you dare to stoop so low when working DX all who hear you will be snickering up their sleeves.

What has just been described is, more or less, a normal DX CW exchange. There is another form of exchange, however, that sometimes takes place when you answer a DX station's CQ, particularly one that is sending at a furious rate. Don't be surprised if he comes back with your call once only, bangs off your RST, then signs a snappy BK. You shouldn't hesitate here - rattle off his RST, sign BK yourself, and put the "QSO", such as it was, in your logbook. Your DX station is merely collecting logbook entries himself and is not even remotely interested in communicating further with you. Don't be offended. It's all part of the game!

At this point I think it is appropriate to make mention of the U.S.S.R. and her satellite countries and a major restraint that they *seem* to be operating under. Of the many hundreds of stations I have worked in the Soviet Union over the years, I have never been able to engage an operator who would go any further than discussing the rig and the weather. This has been the case despite many attempts to engage them in further conversation by asking an innocent question or so. The result has always been the same, a set of BEST 73s GUD DXs and the like, followed by a hasty sign-off. I am unable to prove it, but I infer from this behavior that these hams know that for political reasons it would be unwise to pursue a QSO beyond the basics. This holds true of both club *and* private stations (it is worth noting here that Soviet club or satellite club stations almost alway have ~~a~~ K right after the prefix e.g., UA1KAB, and that private stations lack the K). In recent years it appears that the private stations in the satellite countries are more willing to engage in a free-wheeling QSO, but so far, I have had no such luck with any of their club stations. I bring this sad state of affairs to your attention so that you will not think that your fellow hams in the U.S.S.R. and the satellite countries are cold and unfriendly. It is a pity that this state of affairs exists, because judging by the precision and speed of their code alone, these hams possess superior operating skills. Now, don't be put off by the foregoing discussions because that was the bad news. Now for the good news.

There are many charming, interesting people behind those DX microphones and keys who are only too happy to have a nice, long QSO with you. Most of these people are fluent in the English language and can teach you more about their country, its people, and their customs than you could learn by any means short of a personal visit. Believe me, once you meet some of these people you will be the richer for it.

So, even though you may have to endure many "hello - goodbye" DX QSO's you are building up countries, continents, prefixes, and experience on the DX bands. You also have the unique opportunity of forming interesting friendships all over the world. And, lucky you, the international language of amateur radio is English, your native tongue. Thus you can be most thankful that you don't have to learn Polish or Lower Urdu to experience the thrill of chasing DX!

LONE WOLF DXING

When I first started the serious pursuit of DX in 1959, the major way to make such contacts was very much an individual affair. The key to working both rare and not-so-rare DX stations was to listen, listen, and listen some more. The more time spent listening and the less time spent transmitting CQ DX was the key to more and better DX contacts. This was and still is classic *Lone Wolf* DXing.

Today, however, we are rapidly entering into an era of reliance upon DX nets and list takers. Although I will discuss DX nets and lists in greater detail later on, I will touch on them here.

DX nets meet more or less regularly at a given time on a given frequency. There is an NCS (Net Control Station) who takes down DX check ins and who then typically accepts 10 calls from each U.S. call area. Once ten stations have been collected from, say, the 5 call area then those stations are called in order of their reception by the NCS and are allowed to make one or two DX contacts with only call signs and signal reports being exchanged. When the net is finished, approximately 2½ hours later, approximately 100 stations have worked whatever DX stations that have shown up that day.

List taking is more random in nature concerning times and frequencies and usually involves a U.S. list taker and a relatively rare or extremely rare, DX station. Again, the list taker proceeds by call areas.

I have checked into DX nets and gotten onto lists and have worked quite a few countries this way, primarily because I have worked well over two hundred countries and, literally, cannot work some DX stations unless I go this route. The desired DX station's on-the-air time, you see, is being monopolized by the DX net or list taker. However, something is fundamentally out of whack here. Just imagine, you get into a roaring pile-up with others from your own call area to contact someone (usually a U.S. station, for pity's sake) who is going to give you a clear shot at your target. The price for this somewhat dubious privilege is that you must wait and wait until your turn has been called by the NCS.

Quite frankly, I do not understand these affairs, unless it's a way to lessen QRM on the bands by preventing a full scale every-man-for-himself pileup from developing or to give the DX station a break from making a lot of extra contacts. The point is that a really good DX station can easily surpass the number QSO's per hour possible during a net or from a list by handling a normal pile-up with authority and efficiency. Also, DX nets and list takers create their own pile-ups and, unfortunately, the same bad manners and lack of self control which takes place in the every-man-for-himself pile-up are evident in these situations.

I suppose, then, that these affairs are just a means of allowing the DX stations to give others a shot at working a new country without the DX station himself working his tail off (which managing a really *large* pile-up requires).

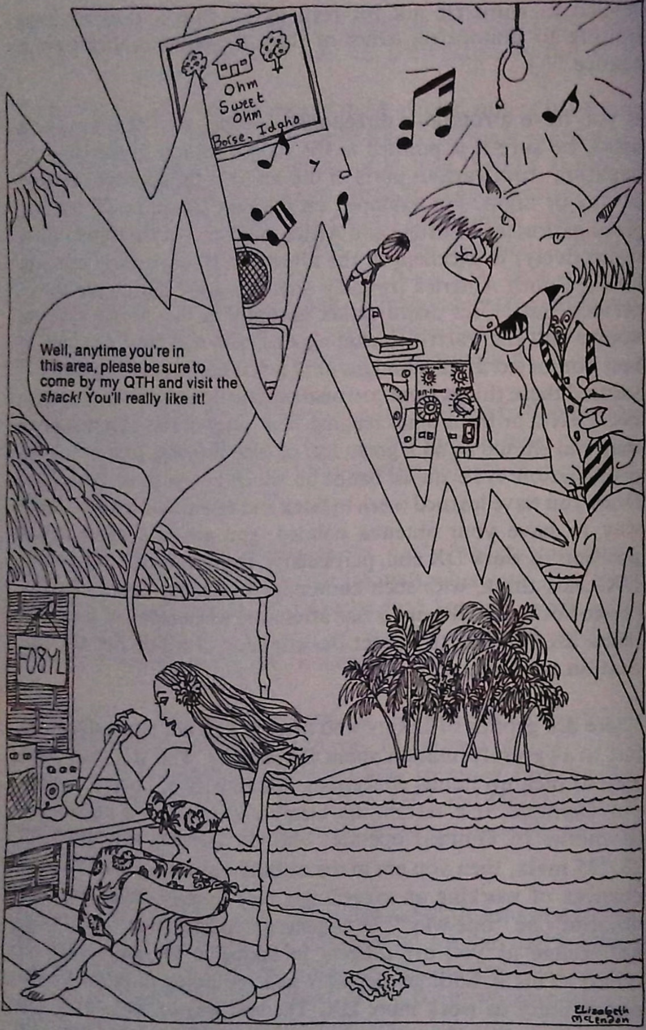
Now, back to the Lone Wolf concept. Let's face it, you don't *need* to be on lists or to check into DX nets when you first start DXing. There are hordes of countries that you can work with little difficulty and which you need in order to build up your country, continent, prefix list, or whatever.

Once you've gained a little experience, it's a cinch to work the more populous counties nearest to you. In the case of East Coast U.S. stations in particular, there are now so many Italians (I's and IT's), Germans (DA's, DF's, DK's, DJ's and DL's), British (G's), and assorted other countries on the bands that they can be worked routinely.

For both East Coast and West Coast hams, South America is fertile ground for gathering DX contacts or for having lengthy QSO's. I mention the extended QSO here because you can enjoy a leisurely time of it talking to most of the countries without irritating, itchy DX hunters interrupting your chat. But, watch out should you attempt to have a soul searching conversation with the likes of a ZD8 (Ascension Island) or a 9K (Kuwait)! You will be reviled in spirit (if not for real) by the heavy-breathing gang waiting to pounce on either of these the moment they have a chance.

If you have a rotatable directional antenna, such as a Yagi or a quad, be sure it is pointed in the right direction to receive propagation from various parts of the world at the appropriate time of day or night. For example, on the East Coast, on 20 meters, propagation into Europe and Africa (roughly Northeast and East respectively) is excellent in the afternoon through early evening hours; South America (roughly South) is good during the same periods but closes down rather abruptly in the middle evening hours; and the Pacific, including Australia and New Zealand, is best contacted after midnight until a few hours after daybreak. I learned these things from personal observation, not from propagation charts or from other reading. The point of this observation is that you should s end a great deal of time listening to the 24 hour propagation cycle on all bands on which you wish to work DX. Once you have learned *when* to listen and *where* to listen and which way to have your antenna pointed, you are in a much better position to work DX and, particularly, the rarest and most distant DX. Just think, with such knowledge you might knock off a 5V (Togo) or a 9U (Burundi) one afternoon when many of the other hams are fighting to attract the attention of a DX Net Control Station or a list taker.

There are groups of DXers who meet as nets not to get onto lists but to swap information about DX activity. This is a marvelous way to pick up tidbits concerning DX activity of interest to you. For example, if a certain net member knows that a certain 3X (Republic of Guinea) operates only on Tuesday afternoon on 28.735 mHz, then you are in the catbird seat with respect to your chances of working an exceedingly rare country. Whatever you do, don't be "one-way"; be as generous in imparting your special knowledge as you are diligent in taking in the knowledge of others. This is both gentlemanly and rewarding in terms of the opportunity to work more DX. The best way to find out about these nets is to talk to the most experienced DXers you know. Be advised, however, that some of these nets can be joined by invitation only.


Ohm
Sweet
Ohm
Boise, Idaho
Well, anytime you're in this area, please be sure to come by my QTH and visit the *shack!* You'll really like it!
FO8YL
Elizabeth McLendon

Lone Wolf DXing has many advantages...

Another means of going about Lone Wolf DXing is to subscribe to one or two privately published DX bulletins. These often provide a wealth of information concerning frequencies, times, dates of rare DX operation, and the status of active or upcoming DXpeditions to remote places. Two excellent examples come to mind. They are:

The DXer's Magazine
P.O. Drawer "DX"
Cordova, SC 29039

The Long Island DX Bulletin
P.O. Box 173
Huntington, N.Y. 11743

DX contests are another fine way to pick up new additions to your logbook. These contests draw DX stations out in droves, and if you are able to handle the uproar of the QRM, there are many exotic locations to be worked over the course of one of these weekends (such contests will be discussed in greater detail in a later chapter).

Lone Wolf DXing has many advantages. It will teach you to become more knowledgeable, self-sufficient, and sets you apart from the herd. So don't bother with DX nets, lists, and the like until you are an accomplished "Lone Wolf." Once you become one, you may put on sheep's skin and mingle with the herd but you also have the choice of throwing it away and prowling the DX bands on your own.

PILE—UPS

One of the most barbaric, mind-boggling rituals in all amateur radio is the DX pile-up. Like a tornado, you cannot fail to recognize one once it has fully developed.

There you are, peacefully tuning the DX CW bands, a bit of the usual QRM is there, but things are essentially normal. You continue your relaxed tuning when suddenly the world goes mad as a shrieking, roaring cacophony blasts through your headphones. A *pile-up* is in progress. There are hundreds if not thousands of stations, all more or less on the same frequency, or, perhaps, spread out over 10 to 15 kHz, all calling something, Suddenly the horrible racket stops and you wonder if you have gone bonkers. Then it begins all over again with an intensity that seems to build by the second. At least you know that your sanity is intact, so you turn down the volume and kick in a filter and try to figure out who the heck everyone is calling so madly. It takes you awhile, because no one that you can hear is sending the call, only a DE and their own call. During a pause you finally locate him, a 5H1 (Zanzibar). He has just given some K7 a 589 and the 7 responds with a 579. Instantly the 5H1 is covered over by the snarling pack, only to resurface 5 or 10 seconds later with an N9, and so it goes.

Whether you are an old timer or a neophyte at the DX game, something starts to happen to you when you run into one of these things. There is an adrenalin hit - your pulse races, the face starts to glow, and your breathing soars upwards. Then you jump in, join the frenzied mob, and contribute your bit to the uproar. "By gosh," you say through clenched teeth, "I'm gonna beat this bunch and grab that 5H1. For Pete's sake, I've never even heard a 5H1 before! This may be my only chance!"

Two and a half hours later the 5H1 is still at it and you imagine that he has probably worked half the United States by then. But in reality you know that this is not so because the pile-up has noticeably escalated in numbers and ferocity. On the edge of despair, you think about shutting down the rig and pouring yourself a tall, cool one as consolation. "No," you mutter, "just

10 more calls and then I'll shut down." So your clammy hand reaches for the key for what seems like the umpteen hundredth time.

On the 8th call it happens - through the third notch of your filter he pops you a 579. Wildly you bobble the key and get off BK DE your call and a 579 and hear a QSL just before the bloodthirsty pack leaps on him again. Elated and trembling slightly, you log him, leave the shack and *then* fix yourself that tall, cool one, only this time it's to celebrate your triumph as well as to calm your frayed nerve endings.

There is nothing like it. Being part of a pile-up is like joining a group of barbarous, undisciplined rabble and like sin, boy is it fun, especially when you score. But there are a few methods to becoming a part of this madness. It should be obvious that if one joins a free-for-all fight and is one of the few standing when it is all over, that possessing greater strength and cunning had something to do with the favorable outcome. This is very much the case in regard to pile-ups and we shall now examine some of the do's and don'ts of pile-up strategy.

The cardinal rule is to listen before you join the mob. In other words, be sure to determine the DX station's *modus operandi.* Does he want the pile to call up or down 5 to 10 kHz? Does he want a frequency spread that he can vary at his option? Does he want the pile to alternate up or down from his frequency when he gives such instructions? What's he really up to?

A masterful DX station will handle the pile with the authority and brilliance of a top orchestral conductor and like a first violinist, you must be able to interpret his cues. One of these guys will continuously evaluate the negative trends in a pile-up, adjust for them, and produce the maximum possible number of QSO's per hour. To accomplish this goal, he may also have to adopt some of the techniques of a Marine drill sergeant and when he issues instructions in this guise you may be sure that he means business and that those who do not heed them will be dealt with harshly, So, stay on your toes and don't blow it.

If, on the other hand, you have an inexperienced DX station trying to cope with the appalling circumstances of a pile-up, he just may shut down the rig, despairing of his ability to ever deal with the howling throng.

With either of these two types, place special emphasis on just where they may be listening at a given moment and try to discern a pattern if you are able to do so.

Pay attention to whether or not the DX station accepts "tail-ending." This practice involves moving about ½ to 1 kHz up or down from the station that the DX station is working. If the DX station allows it and if the station being worked by him finishes the QSO by using the DX station's call sign prior to him signing his own, you have your chance. On CW send your call sign once or DE and your call sign once (whether you use DE or not depends upon how the DX station has responded to other tailenders - faster operators don't like the DE before the call). On phone, use your suffix phonetically once and once only (e.g., Xray Yankee Zulu for XYZ) before the pile jumps back into the fray. Some DX stations readily accept this practice and may come right back to you or will at least note your call so they can listen for you in the next go-around with the pile-up. Be careful though; some DX operators look upon tail-ending as ungentlemanly and as a nuisance. The less forgiving operators who dislike this practice may even "black-ball" you - that is, put you on a no-contact list (there is a much more graphic way to describe such a list). Again, listen for what the DX operator considers to be acceptable behavior and comply with his stated or implied directions.

Some DX operators when confronted with a particularly horrendous pile-up may decide to work it by U.S. call areas with some time alloted to other DX stations. Call only when he asks for your call area. Otherwise, you run the danger of being black-balled and you will most certainly be labeled a "lid" by those stations fighting for attention in their call area pile-up and those patiently waiting for the turn for their call area.

If you manage to land the DX station, do not, *repeat,* do not launch into a monologue about the weather and your rig unless you want to be thought a jackass by the DX operator and the impatient mob.

Also, do not engage in long calls if you are dealing with an above average operator. While you drone on, whether by microphone or by key, the DX station will work, or attempt to work, one or two stations and your brethren will damn you for QRMing the proceedings.

Let's assume for the moment that you are in the fifth call area and the DX station has worked nothing but the sixth and seventh call areas for the last half hour. Unless you know that decent propagation from the DX QTH to your own is forthcoming, based upon the band in use, the time of day or night, and/or other variables, don't waste your time calling. Instead, listen around for a station in some part of the world that you can reasonably expect to work. But do try to find out if the desired DX station will be on the next day or the next week or a different band when propagation to your neck of the woods will be better.

One of the banes of amateur radio is the *police*, a deplorable group of turkeys who derive great pleasure in patrolling pile-ups to right the real or imagined wrongs of those calling a DX station. You will recognize them as those who hop into a pile-up screaming, "Up 5!" or "Down 5!" Or, "Shaddup you lids!" Get the idea? Even though they have not been invited to participate in such a capacity, they have cast themselves in the role of correcting the actions of others. They are far worse, in terms of QRM generated per station, than those they aim to punish and their tackiness and stupidity is only exceeded by their pervasiveness. Don't you dare start screaming back at the "police." The instant you succumb to such a temptation, you have joined their ranks and are no better than they. Ignore them and keep using your noodle to crack that pile-up.

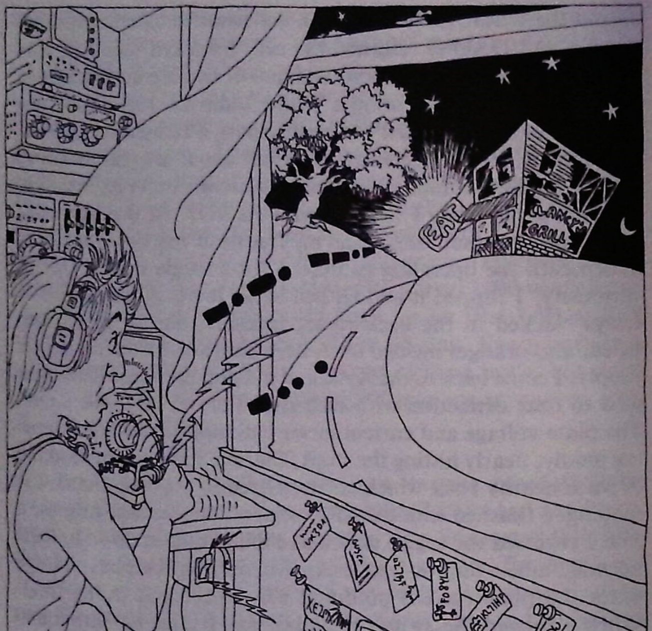
Another obstacle that you must learn to deal with during pile-ups are the *big guns.* These operators have stations that can produce receiver melt-downs and most of them achieve such results with maximum legal power, the finest antenna matches, and antennas such as monoband 4 element "Big Daddy" quads and 4 to 6 element Yagi's placed as high up as money and personal ambition can get them. There will be a few, however, who have no compunction about using a "kicker" (a linear that can boost power well past legal limits). These boys don't just cheat a little bit when they do this-they cheat a lot! The reason for this is quite simple-they must double their power to get a 3 dB gain, or ½ S unit, and they must double it again to get the next 3 dB or 1 S unit. Let's say a maverick "big gun" is cheating and wants 6 more dB or one S unit to ace out his rivals. Starting with a legal 1000 watts input on CW, he must go to 2000 watts input for his first 3 dB or ½ S unit and to 4000 watts for his 6 dB or 1 S unit. Every once in a while the FCC does manage to nail one of these birds, but most just go on their merry way, making DX pile-ups an uneven contest for everyone else.

This point makes it worth mentioning a favorite anecdote from my early days as an amateur radio operator. I knew and still know a very famous "big gun" who was away on a protracted DXpedition and he had asked me to come to his shack and fire up his rig from time to time so that he could stay in direct communication with his family. His home was in the country and in his shack a magnificent home-brew rig curved around in a huge horseshoe and upward almost to the ceiling. The final amplifier tube was a 4XC1000A broadcast tube and the half of the shack not occupied by the rig console was taken up by the most gigantic power supply I had ever seen. It literally bathed the darkly lit shack with an eerie purple-lavender glow. The antenna was a 5 element 20 meter Yagi up 150 feet and painted orange and white *and* equipped with red lights because of Federal Aviation Agency rules that existed at that time.

One afternoon I contacted my friend at a rare European country he was operating from at the start of his globe-girdling odyssey. We finished passing the news back and forth between him and his family as evening fell. Once we had signed clear, I swung the monstrous beam to north and banged out two CQ's and signed his call one time. A UJ8 (Tadzhik, in the USSR), a UL7 (Kazakh, also in the USSR), a VU2 (India), and assorted Siberian stations (UA9's and UA0's) returned the call. I worked the VU2 who gave me a 599. I was delirious with power because at that time at my home QTH, I was using a World Radio Laboratories Globe Scout 65A (you guessed it - 65 watts input), a Halicrafters S-53A, and dipoles. It was necessary to scratch about at great length to work even the commonest European stations. An AP2 (Pakistan) gave me a call when I finished with the VU2. At that very moment, for no reason other than my free hand was fidgiting about underneath the operating console, I felt a toggle switch. Out of curiousity, I flipped it and all hell broke loose. A procession of relays clacked in the back room, lavenders and purples intensified, and oranges melded in. A deep hum arose from the power supply. I came back to the AP2, and as I did, the houselights dimmed to near extinction with each stroke of the electronic keyer. The plate voltage and current meter indicator needles were dancing madly, nearly hitting the stops. Outside, I saw a light blinking down a nearby road which corresponded to the code that I was sending. I finished with the AP2, who, needless to say, gave me a 599. I reversed the toggle switch and things calmed down to their normal, albeit impressive, levels. Multiplying the plate voltage times the plate current produced 970 watts input to the final. When I moved the switch the other way I came up with 3,880 watts!

I turned off the rig, left the shack, and got into my car to find what those blinking lights down that deserted country road were all about. About 1/8th of a mile from his home was an abandoned business of some sort which had boasted neon lights in better days. So that was it - there was so much RF streaming from the 5 element monobander with the kicker thrown in that it had activated the neon as I transmitted!

When I confronted my friend about the kicker upon his return from the DXpedition, he laughed good-naturedly and said that it was not used except in self-defense when certain other stations known to have them showed up in a pile-up. He rattled off a few call signs and I recognized a handful that were way up on the DXCC honor role listings of that era. Some years later my friend



I saw a light blinking down a nearby road which corresponded to the code I was sending.

dismanteled that rig. But I will never forget the time I lit up the night with RF. Such digressions aside, let's look at a few more tips on dealing with pile-ups.

For gosh's sake, don't even try to deal with a pile-up unless you have a remote vfo or a second receiver. A transceiver without a remote vfo or a second receiver to accompany it will not allow you to listen on the DX station's frequency and to transmit elsewhere, a frequent requirement in pile-ups. Break-in operation of the rig is also important. This simply means that a relay set-up allows you to transmit and receive without having to manually throw a switch.

Anyone who has known the thrills and horrors of pile-up operations knows that a really good receiver is more important than having a top rated transmitter. CW/SSB notch filters on newer rigs and/or separate signal enhancers for older rigs are essential to being able to peak DX stations and to knock out undesirable heterodynes. It is useless to have your signal picked from out of the maelstrom by a DX station if you can't hear him come back to you.

Remember I said that the pile-up is perhaps the most barbarous and therefore joyful of rituals in all amateur radio. All rituals, however, have a certain form that is best understood by the actual participants. So, learn the forms of this strange and exhilirating aspect of amateur radio group behavior by listening and listening some more. Only then should you leap into combat. When you do, I'm sure you will crack many a pile-up!

DX NETS AND LISTS

In the previous chapter mention was made of *DX nets* and *list taking.* We will now take a closer look at these two phenomena.

To refresh your memory a bit, let's first take a look at DX nets. To begin with, I make a distinction between DX nets formed for the purpose of getting together a group of amateur operators on a more or less regular basis to exchange DX information and those whose purpose is to control the number and manner of contacts with a DX station.

This latter form of the DX net is somewhat repugnant to me, primarily because they substitute one set of problems for others. You will recall the joyous anarchy of the classic every-man-for-himself pile up. DX nets attempt to reduce this chaos by meeting on certain frequencies on particular days and at particular times. These tend to be phone nets. There is a Net Control Station (NCS) who then "holds court", thus permitting other stations to check in with His Lordship for the purpose of requesting QSL information on stations they have previously worked. They usually want the name of their contact's QSL manager or the contact's address. This is the informal part of the net because the NCS merely answers queries from whomever gets through to him. The next part of the net begins when the NCS invites DX stations to check in with him. Once the NCS has such a list, he will make an announcement something like, "To the 1's, 2's and 3's on frequency, today we have . . .," and he will give the DX station's call signs and their QSL information. Next he announces, "Now for the 1st call area - suffix once only, please. Stations in the state of Connecticut make your call." A flurry of Connecticut stations then blast out their calls. Net Control then comes back, "Xray Yankee Zulu, I have you. Another." One more uproar takes place and you hear, "Whiskey Tango Foxtrot, I have you. Now the state of Massachusetts . . .," and so on. When the NCS has 10 stations he starts from the top saying, "Xray Yankee Zulu, make your calls." Xray Yankee Zulu then makes one or two calls, exchanges reports with the DX station, and that's that. The NCS, who may be assisted by others because of his inability to copy certain call areas, works through all ten call areas and when he's through that's the end of the net. It doesn't sound like much of a thrill, does it? Well, it isn't! There is no *thrill of the chase*. It's all very cut and dried. You either punch your way through to the NCS on the one to at most three opportunities you will have during the net or you are out of luck for the day. It's a game that largely depends upon great antenna systems and/or lots of power. Thus, if propagation from your call area to the NCS is roughly equal on a given day, the strongest signals get through and the others get drowned out. There is no tail-ending, no interpreting what a DX station may or may not want you to do at a given moment, no opportunity to hang in there and, by sheer persistence and creativity, bag yourself a new one.

What you do get on the DX nets is a clear shot at your DX station - there is little QRM. But the band itself is QRMed at intervals because of the series of mini-pileups created when everyone is trying to outshout each other in frantic attempts to get the attention of the Net Control Station.

There is no question that an adept DX station can produce many more QSO's per hour than can be produced on DX nets. It is debatable whether an inept DX station would be more or less efficient than a DX net in terms of QSO's per hour. In fairness, however, I would guess that the balance would be tipped in favor of DX nets.

List taking is roughly the same as the DX net situation with the major difference being that list taking is more sporadic in nature than the DX nets.

The list taker is usually a station that establishes a relationship with a single rare DX station and then proceeds to control the number of contacts and the manner of their making contact for a given period of time. List takers also work by call area but generally prefer that an entire call area, not just particular states within a call area, transmit to him at the same time, giving the last letter of the suffix only. Again, everyone seeks to outshout one another in an attempt to be picked out by the list taker. Once this individual has 10 last-letters-of-the-suffixes, he goes back through and tries to pick up the entire call sign. This often doesn't work too well because two or more operators frequently share the same last letter. Once this mess has been straightened out, it's just like the DX nets - you get a clear shot at the DX station, no creativity is exercised. Also, there is no lack of bad manners when list takers or DX nets are in operation. The usual assemblage of "police" and various subspecies of turkeys are around in abundance. In fact individual turkeys have more opportunity to make their presence known. Those that did not get through to the list taker or the DX NCS can gobble out their frustration with less QRM to drown them out than in a classic pile-up.

It is worth noting, however, that some DX Net Control Stations and list takers perform a useful service because some DX stations will not appear on the air unless they have the kind of insulation from the pile-up that these individuals can provide. Imagine, if you are able, that a particular DX operator is a shy, retiring sort who trembles at the very thought of an entire band erupting whenever he chooses to appear on the air. In such cases we should all be grateful to the DX Net Control Station or list taker, particularly if they happen to be cheerful, polite, efficient and concerned for both the DX operator and the hordes that are waiting to work him.

In general, however, it is my recommendation that DX nets and list takers be used guardedly. Continue with the "Lone Wolf" route until you find yourself running out of countries to work. When you really think about it, reliance upon others to do what you should be capable of doing yourself is not in keeping with the creative, free-wheeling ethos that has made amateur radio the interesting, compelling hobby that it is.

AMATEURIS VULGARIS
(LIDENSIS)

According to taxonomists, those whose business it is to scientifically classify biological organisms, the formal Latin description of one species of domestic turkey appears thus:

Class	*Aves*
Order	*Galliformes*
Family	*Meleagridae*
Genera	*Agriocharis ocellata*
Species	*Meleagris*
Subspecies	*Gallopavo*

This is one subspecies of the domestic bird, sold under brand names such as "Butterball", that form the centerpiece of most Thanksgiving and Christmas meals served in the United States. Although this bird makes delicious table fare, they are justly famed for their individual and collective stupidity. Without the flock, they don't know what to do when they feel threatened, and *as* a flock, they often amass against one side of their pens and smother each other when danger is suspected. No wonder, then, that among humans the word *turkey* has become a common epithet, hurled at others who never seem to make sense or who fail to measure up to reasonable standards of behavior (the domestic turkey and his human counterpart should not, however, be confused with the North American wild turkey which is so wary and clever that it is seldom seen *or* heard). It is unfortunate, then that amateur radio is, in part, populated by a form of the *domestic* turkey that cannot even be graced by inclusion in the same genera and species as those which occupy Thanksgiving or Yuletide tables. In an attempt to set them apart from their more distinguished relatives, then, the following taxonomic classification is hereby proposed for the turkey in ham radio, along with a brief description of each level of classification.

Class	*Aves* -	Class of vertebrates comprising the birds.
Order	*Galliformes* -	Ground birds with heavy bodies, relatively small heads, short wings, ground nesters, produce large broods.
Family	*Meleagridae* -	Kin to the *Numididae,* which includes the notoriously scatterbrained guinea hens (also known as guinea fowl).
Genera	*Domesticus* -	Genera mainly populates middle latitudes of North America, including both coasts.
Species	*Amateuris Vulgaris* -	Rarely issues forth from its haunts, gobbles incessantely but does not reveal itself physically.
Subspecies	*Lidensis*	Race not very adept at anything *except* gobbling, have difficulty caring for themselves, and have a distinct aversion for others.

Although amateur radio's version of the domestic turkey haunts all amateur frequencies, they gobble with greater urgency and in greater numbers when other amateurs are working hardest. For example, during Hurricane (or is it *Hissicane?*) David in 1979, they vocalized in unheard of numbers. While the Emergency Net Control Station, who was a most competent and exhausted YL operator, was trying to coordinate emergency traffic for the lower Eastern seaboard and the Caribbean, they could be heard everywhere. Several played music on the frequency and others rattled off obscenities. Others kept popping on with the infantile *didididit didit's* (HI! - a laugh, get it?).The turkey "police" were there too and made indignant announcements to their comrades such as "Okay, buster, keep it up! I've got a fix on you and a call into the FCC. Anybody else got a fix on this bird?" Naturally, no station I.D. was given. The clincher came when a voice fit for a funeral popped on every few minutes proclaiming, "This is a black day for amateur radio." Black indeed! He was zero beat with the Emergency Net Control Station *himself* and was causing substantial difficulties for the net!

This behavior is typical of how the turkeys operate on the DX bands. Inside their haunts their feathers bristle and gleam when they locate a list taker, a DX net or a pile-up. Many of these are the aforementioned "police" but during situations involving DX they seem to derive great satisfction from quarreling among themselves. Let's say someone has called a DX station out of turn. A typical exchange sounds like this:

> "Shaddup!"
> "Who're you tellin' to shaddup?!"
> "You, fool!"
> "Ahhh, shaddup!"

There is a minute pause and then comes:

> "Botha' you fools shaddup,
> you're QRMing the net!"

Both simultaneously:

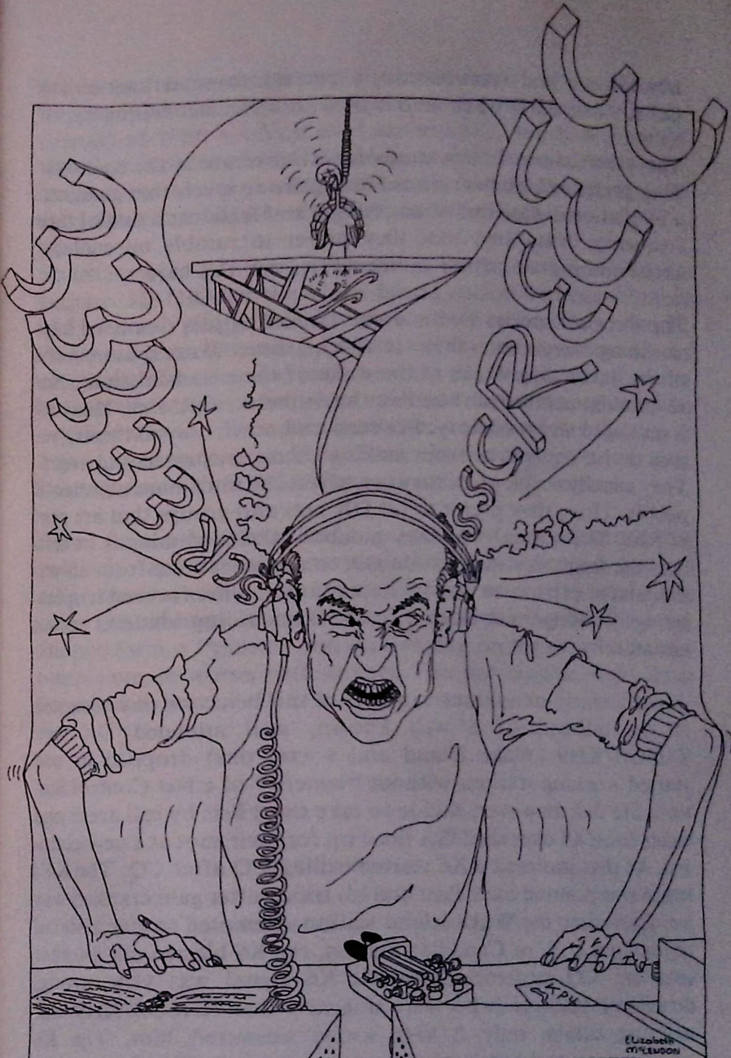
> "Ahhh, shaddup!"

Note the similarity of the gobbles?

A ringer for the turkeys found on the DX bands is the nasty tempered list taker or DX Net Control Station. Let's take an example. Let's say a new General Class operator hears a rare DX station that has just identified itself. The DX station is participating in a list or DX net and the newcomer calls the DX. The response from the nasty tempered DX NCS or list taker is likely to be so furious and devastating that our newcomer may be tempted to tear his ticket in half. Even experienced operators make such mistakes or check into an unfamiliar net and don't follow procedures right down the line by way of making an honest mistake. The response will be the same: "Mr DX NCS" will blow away anyone who makes a mistake while "his" list or "his" DX net is in progress.

Unfortunately, there are numerous other subspecies of the domestic turkey lurking about the underbrush of the DX bands. Now here's one that any DXer should recognize. Let's say 20 meters is hot and that in the usual hubbub you catch a faint but very tantalizing prefix such as 3B8 (Mauritius) but have just missed the suffix. There is no pile-up. The 3B8 starts to repeat his call and you squirm in your chair with anticipation, when suddenly your earphones erupt with a 40 over S9 SSSCREEEEEEEEE! "Oh no!" you moan to yourself, "a %*!¢*"%! tuner-upper!" The racket stops. The 3B8 makes another call and you pounce. He comes back and the all important signal report is coming. Then SSCREEE! Short pause. SSSCREEEEEEEE! In your minds eye you see a platform, the tuner-upper turkey is standing upon it, all 13 turns of a gallows noose securely fastened about his scrawny neck. The racket stops again. Desperately you call the 3B8 again. Nothing! In seeming mockery comes SSSCREEEE! SSSSCREEEEEEEEEEEE! The bottom drops out from the gallows platform and the tuner-upper turkey *silently* swings from side to side. In your imagination another image forms. You are dancing on the turkey's grave, schrieking maniacally all the while.

The tuner-upper turkey has two close cousins. Say you have been checked into a DX net and have waited long and patiently for your turn to work one or two sorely needed DX stations when your turn comes. You make your first call. Then AHHHH CQ, CQ, CQ, etc. You have just been blown away by one of the tuner-upper turkeys cousins, the one who never, ever listens before



...a platform, a turkey is standing upon it...

transmitting and who seemingly prefers to send interminable CQ's, particularly when zero beat with a DX net frequency.

The other cousin in this unsavory triumverate is the *splatterer*. They prefer to kick their transmitter gains to levels that guarantee a besplattered wipe-out of anything 4 to 5 kHz each side of their frequency. Naturally, too, they prefer to ramble on endlessly about nothings at critical moments in your DX career.

The three subspecies of the domestic turkey just discussed have one thing in common - they are all a bit dim and are thus unaware of the havoc they wreak in the wake of their transmissions. Not so another member of the tribe, the deliberate QRM'er. This bird is deranged and predatory. For reasons known only to themselves they derive enjoyment from making others frustrated and angry. They usually strike when they can affect the maximum number of people. Thus, they prefer to hit DX nets and groups that are part of lists. The normal way they go about their jamming is to zero beat the frequency in question and to use everything from an unmodulated carrier, to music, to profanity. Next favored is splattering by sitting up or down 1 to 2 kHz and doing whatever comes unnaturally.

A particularly obnoxious example of this behavior was observed at the tail-end of a well known, well attended DX net. KH6GB/KH9 (Wake Island and a rare one) dropped in and started working stations without "benefit" of a Net Control Station. He did, however, decide to take short lists by call areas and eager souls all over the USA lined up for their shot at a new country. At that moment a K6 started calling CQ after CQ. The K6's beam was pointed back East and his transmitter gain cranked way up. Each time the Wake Island station attempted to give a signal report to a U.S. or Canadian station, the K6 blasted out another splattery CQ sequence.Since the K6 signal was very strong, dozens of stations (who were unaware that KH6GB/KH9 was working others only 2 kHz away) answered him. The K6 answered no one and just sent more strings of CQ's from, as he put it, "Beautiful Southern California." A few stations, aware of what was going on, tried to chastise the K6, which simply added fuel to his fire, and caused him to redouble his efforts. Finally, the K6 announced, "Okay, I sat on you easy today. This is K6 ---, courtesy of WB6 ---. You guys sound like a bunch of monkeys (chortles). You're always blanking me out. See you next time." Threats flew toward the K6, or whatever he may have been, from every direction. He closed with a sarcastic laugh.

No telling what got the turkey going, but he did accomplish his purpose. He QRMed the Wake Island station and caused those who tried to "punish" him to do the very same thing. Many of those who ignored the entire, wretched mess managed to work the courteous, if beleagured and bewildered, Wake Island station because there were a few quiet intervals during the uproar. The moral of this sad little tale is simple: be patient, let the turkey tribe be what they are, and let those who feel they must vent their frustrations on their fellow turkeys miss the DX contact.

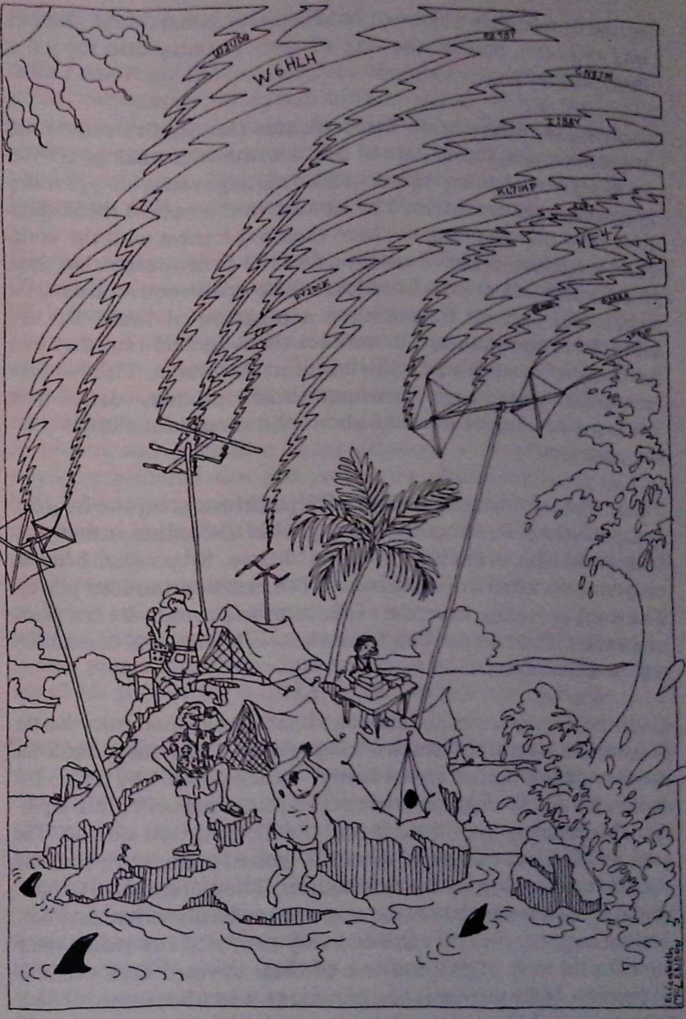
If you have a bad actor in your area and have identified him positively, try persuasion, particularly if he is a member of a local net or amateur radio club. If this does not work, then report him to the FCC in hopes that they may catch him in action. Warning! Do not form a "posse" and go banging on his door with your complaints, or worse, with threats. You just may be sued - it has happened before.

DXPEDITIONS

As of this writing, the ARRL official countries list includes 318 countries and some of the DX world's senior members appear on the Honor Roll with considerably more than this number. W6AM, for example, is listed as having 318/365, which means that he has all currently recognized countries and 47 more which have been deleted for various reasons. Stations such as W6AM, W1GKK and W9BG (who share the same score as of this writing) will probably continue to dominate the honor roll during their lifetimes. Those next in line to head the ARRL Honor Roll List and the CQ DX Honor Roll List (which is sponsored by *CQ Magazine,*) will be those operators who now have worked or soon will work all 318 countries on the current ARRL List. Of these, the operators who will bypass their competitors on the lists will be those that manage to work new countries as they are added to the ARRL's official list. And to stay abreast of it these stations will, more likely than not, have to work a number of DXpeditions.

Some of the countries that are on the ARRL list and some which may some day join it, are and will be little more than barren little accumulations of fossil coral, rock or some scrub or palm trees. But you can count on this: as soon as some Godforsaken, mid-oceanic protuberance or other meets the ARRL's complex formula for admission to separate country status, a DXpedition will soon be on its way to put it on the DX map. You can also bet that once the new country is on the air that the "big guns," many of whom are on the honor roll lists, will be out in force, along with thousands of lesser lights in the DX hierarchy. When this happens you will hear no pile-up more frantic or more furious.

The DXpedition possesses elements of both madness and glory. On the one hand, a single individual or group of individuals sets out for someplace that would be the despair of a shipwrecked sailor and then, likely as not in sweltering heat, sets up tents, antennas, transceivers and the like for the sole purpose of exchanging call signs and signal reports with thousands of other amateurs for several days or weeks. On the other hand, these people are roughly equivalent to the early European explorers. They



Some "countries" which DXpeditions have visited have been little more than isolated, barren, little accumulations of fossil corral...

set out to relatively unknown lands, suffered hardships along the way and often planted the flag of their country into the soil of their destination.

In short, the DXpedition demonstrates the urge to explore and even to conquer. Being part of one is somewhat analogous to being a member of an expedition which manages to scale a previously unconquered mountain. The victors, in the case of the DXpedition, need not wait long to share their exultation with the world. Once the generators are humming and the first operator sits down to a rig, they are able to broadcast their achievement around the world. Not only do they achieve a measure of fame, but they allow those who manage to contact them to feel that they have participated in some way, which indeed they have. This has to be better than the purely vicarious thrill one may derive from reading a newspaper account about the mountain climber's distant conquest.

Those who participate directly in DXpeditions are quite frequently expert operators. Their primary goal is to contact as many stations as possible in the least amount of time. So you had better be on your toes when you confront a DXpedition-induced pile-up. The hams operating from the expedition will usually be fast paced and expert. The competition from the worldwide DX community will be at its fiercest!

Under no circumstances should you violate the ground rules that the DXpedition operators are working under. You may recall the statement made earlier about being "black listed" by a rare DX station for not heeding his attempts to put some order into a pile-up. This warning goes double for the DXpedition pile up. The guys on the other end have, after all, gone to much expense and trouble to get to their exotic destination. They often have to function in an adverse environment and are probably exhausted. Little wonder, then, that they are not very prone to rewarding some fumbling lid with a QSO and one of their coveted QSL cards. If an operator in the pile-up is too persistent, too obnoxious, or both he just may be "black listed" permanently. This means that if the DXpedition moves on to a new location that the ban on working said individual is still in effect.

In the *Lone Wolf DXing* chapter, you may recall that I mentioned the importance of subscribing to some of the better DX newsletters to pick up valuable tidbits on DX operations. These newsletters are equally important sources of information concerning DXpeditions, their preferred manner of operation, times, frequencies, QSL managers, and so forth.

You may also recall that in the same chapter I mentioned those DX nets that are in existence for the sole purpose of exchanging DX information. These nets are a superb means of helping to keep yourself informed about DXpeditions in progress and those that may take place soon. Better still, if a DXpedition is to visit several locations and there happens to be a change of plans as there often is, these nets are usually the first to know about it. By joining such nets and being generous with information you may have gathered can put you in the position of being an "insider,'' one who receives and dispenses information not necessarily published in the DX Bulletins. You may even be able to make a special schedule for yourself and a DXpedition, particularly if one of your net members is a special pal of a DXpedition member or, better yet, the expedition QSL manager. Many times I have heard a DXpedition QSL manager meet with the DXpedition by special, prearranged schedule and have heard the manager slip a few of his pals in for a quick QSO. No pile up, no hassle.

You may be licking your chops and drooling all over your station desk when you hear a 7P (Lesotho) or a 9X (Rwanda) transmitting in the clear during one of these schedules. Don't dare break in unless you have been invited to do so by prearrangement. This is *the* quickest way to get yourself ''black listed.'' If you have been invited to work the DXpedition under these circumstances, you may have a chance to work one or even two new countries over and above that of the DXpedition. This may happen because many exotic DX stations hang around during these schedules to work the new one or assist the DXpedition in one way or another. When you hear such stations check in, wait until the DXpedition schedule is over and then call on frequency. Once I worked two new counties within a minute of each other, C5 (The Gambia) and 6W8 (Senegal) after a VK4 working portable 3X (Guinea) finished a schedule with his W4 QSL manager. I had not even been invited to work the 3X (and never did) but I controlled myself until the business at hand was over and the 3X had left the air for the evening. The C5 and 6W8 gladly gave me reports completely in the clear, although I admit I used my knowledge of French to bag the 6W8. All it took was restraint and careful listening for 45 minutes - not bad for an evenings work when you have over 200 countires. Another advantage of listening to such schedules is that you may learn of another special schedule or on what frequency and time the DXpedition will be on next.

Using on the air observation, information oriented DX nets, and DX bulletins, you can increase your DX success rate substantially by consolidating the information. Write or type up a list of upcoming DXpeditions, noting dates, times, frequencies, QSL managers, and so on. Keep this list in a prominent place close to your rig and update it periodically. This will serve as a reminder to you and will allow you to adjust your workaday schedule to coincide more closely with the operations of the DXpeditions.

It is recommended that you QSL DXpeditions promptly. If you do not, there may be a change of QSL managers or some such disaster and you will not know who has the logs recording your QSO. It's virtually impossible to get a confirmation under such circumstances and it may be years before you get another shot at the country if it is rare enough or if geopolitical circumstances change.

Always send the QSL manager an S.A.S.E. (S*elf*-A*ddressed* S*tamped* E*nvelope*) and send along a few *green stamps* if you hear they are desired. *Green stamps* are good old, devalued U.S. dollars and are appreciated because they help to defray some of the expenses of a DXpedition. If the QSL manager is other than a U.S. station, check to see whether or not he wants IRC's (I*nternational* R*eply* C*oupons*) or *green stamps*. In some countries *green stamps* are illegal and in other countries the IRC's are not accepted by *their* post office.

UPGRADING THE LICENSE AND WHAT IT CAN DO FOR YOU

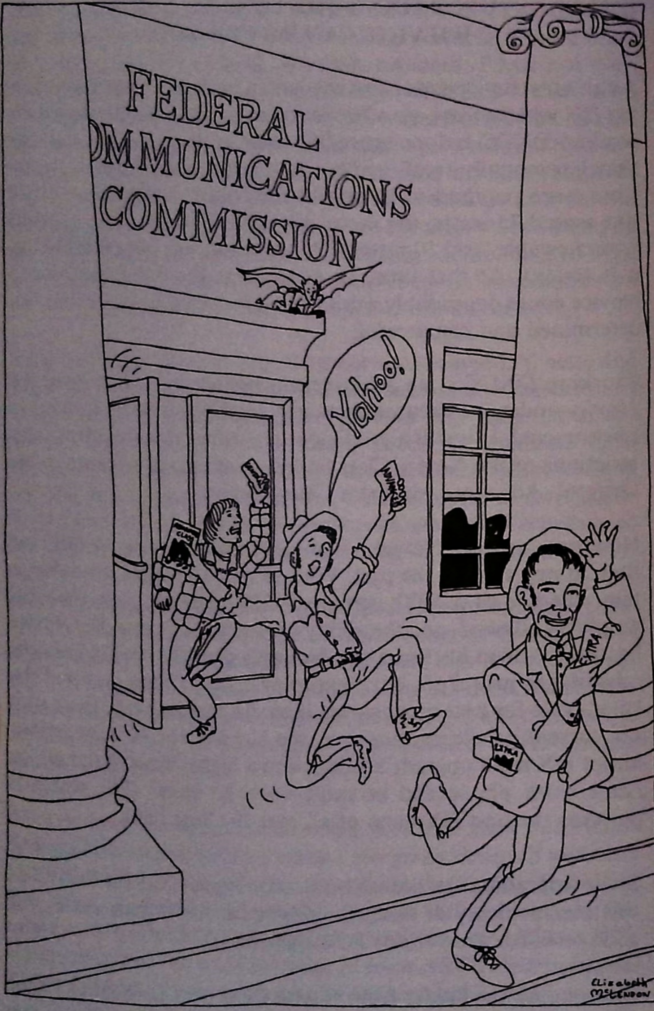
As an amateur operator you can have a heck of a good time chasing DX whether you are a Novice or an Extra Class. Novices have worked DXCC before upgrading their licenses and at least one that I personally recall performed the feat back when such stations were required to be crystal controlled, power input could not exceed 75 watts, the license was good for one year, and was nonrenewable (and 10 meter CW operation was not permitted as it is today). At that time, 15 meters was the only band that a Novice could dependably work DX on provided he was energetic, determined and resourceful.

Working DXCC is an achievement, period; but working it as a *Novice* under the circumstances just described is nothing short of phenomenal. It is still a prodigious feat when you consider the restrictions of the Novice Class license as compared to those of the General, Advanced, or Extra Class licenses.

However, a skilled Novice is in a better position to work DX now than at any time in the past. With 15 *and* 10 meters available to him, the use of a VFO permitted, 250 watts input to the final amplifier allowed, and the ability to renew the license, the Novice has the world at his fingertips. Not only does the Novice have the advantages just cited, but equipment is better than ever and the solar cycle for best propagation is barely past its peak. Even with his current privileges, however, the Novice who is truly serious about DX must upgrade his license to a higher class. After all, he can't work phone and he can't work 20 meter CW, which is perhaps the best DX band of all over the long haul.

Since upgrading the license is the only logical step for the DXer, this means plenty of study to prepare for the written exams and code tests for the various FCC elements.

One step up the ladder from Novice Class is to Technician Class. Quite simply, Technician Class operators are granted all amateur privileges above 50 mHz and retain all Novice Class privileges.



Upgrading the license is the only logical step for the serious DX'er.

But the step is really an unnecessary one because it doesn't greatly enhance the individual's chances of working DX. Instead, it is more logical to shoot for the General Class ticket, which opens up many new frequencies, phone capability, and three additional bands: 160, 75, and 20 meters. The price for this luxury? Just pass a 13 w.p.m. Morse code test and a 50 question written (unless you have a Technician Class license, then *only* a code test is needed).

Although taking and passing this test assumes sinister dimensions in the minds of many Novice Class operators, it should not. Some individuals don't even bother with the Novice Class license. They study their theory and regulations and practice diligently with their code records, W1AW practice runs and code practice oscillators, walk into their local FCC offices and, BINGO!, walk out as General Class (or higher) licensees. Many Novice Class operators spend only a few weeks or months on the air before passing the next exam. The moral to all this is don't procrastinate in your studies and don't be scared of the blamed code tests. If you muster up a little determination and apply yourself to the task, you should pass any of them in a breeze.

Let's assume that you have General Class privileges. This is no mean achievement, but some of the DX *you* may want to work will be hanging about frequencies reserved for the Advanced and Extra Class operators. So, if you don't want to be thwarted in your pursuit of these lads and lassies then it means that you have two more written exams and one more code test facing you (to get the Extra).

With the Advanced Class license, you pick up 340 kHz in the phone section of the 75, 40, 20 and 15 meter bands and these new frequencies are shared with Extra Class operators. If you look at it another way, it means that you gain 23% more of the frequencies available on the four bands.

If you can then muster the fortitude to pass the Extra Class exam, you gain another 9%, including some CW and phone frequencies reserved exclusively for this class of license. Adding the two percentages you gain 32% more frequencies, which is a lot of incentive.

Many amateurs will admit that obtaining the Advanced Class license is a worthwhile endeavor but that so little is gained by tackling the Extra Class exam that it is not worth the effort. In my opinion, and those of most "big guns", this is *not* true if you want *the greatest competitive edge* in your quest for DX and here's why:

(1) Some DX stations do not like to put up with the heavier QRM on the bands shared by General, Advanced and Extra Class Operators. These stations, as a consequence, tend to stay in the Extra Class portions of the bands to eliminate some of the QRM.

(2) Many DX stations tend to hover at the edges of the "foreign" portions of the bands. On 15 meters, for example, the "foreign" portion of the band is from 21.250 MHz down. Only an Extra Class licensee may operate from 21.250 MHz to 21.270 MHz. Obviously, this puts the Extra Class licensee closer to the DX on this edge of the band!

(3) Someday you may be willing to give away important parts of your anatomy to work a particularly rare DX country. If that station happens to show up in the Extra Class portion of a particular band, you'll be out of luck!

(4) Many serious DXers (both domestic and foreign) are also serious DX contest operators, since so many rare DX countries are represented during these affairs. In other words, it's a great way to pick up new countries/prefixes! Frequency allocations for the various U.S. license classes are *not* suspended during contests. Thus, with all other things being equal, the Extra Class DXer has a real competitive edge with respect to contest points and the possibility of working new countries.

The foregoing points should convince you that it's worth going the entire distance! Content and secure is he or she who has reached the heights by earning the W.A.L. Award (W*orked All Licenses*), unless, of course, a broken home has resulted and divorce proceedings are now under way!

Now let's take a look at the GASP! GULP! Extra Class Code test. The format is the same as for the General Class but now you're dealing with 20 words per minute, 35% faster than the 13 words per minute they shot at you before. Do *not* quake in your boots at the very thought. You must simply work enough CW to improve your speed. As a very practical matter this means that you should spend at least half of your time working CW while you are a General or Advanced Class operator. Your code speed will drop to zip if you always haunt the phone bands. Push yourself - work CW operators who are faster than you and gradually your speed will improve. Of course, there are the W1AW practice runs, code tapes, records, and the like.

For your convenience the table below provides a synopsis of U.S. Amateur frequency allocations exclusive of VHF and above:

1800 - 2000 kHz	160 meters
3500 - 4000 kHz	80 and 75 meters
7000 - 7300 kHz	40 meters
14000-14350 kHz	20 meters
21000-21450 kHz	15 meters
28000-29700 kHz	10 meters

The following table provides a synopsis of requirements and privileges which apply to the various U.S. license classes:

CLASS	CODE TEST	WRITTEN EXAM	PRIVILEGES	TERM
Novice	5 wpm	Elementary theory and regulations	A1 in 3700-3750, 7100-7150, 21100-21200 and 28100-28200 kHz. 250 watts maximum input.	5 years renewable

Technician	5 wpm	Elementary theory and regualtions; general level theory and regulations	All amateur privileges above 50 mHz plus Novice privileges	5 years renewable
General	13 wpm	Elemenetary theory and regulations; general theory and regulations	All amateur privileges except those reserved for Advanced and Extra Class. These are: 3525-3775, 3890-4000, 7025-7150, 7225-7300, 14025-14200, 14275-14350, 21025-21250, 21350-21450	5 years renewable
Advanced	None if you already have a General	General theory and regulations plus intermediate theory	All amateur privileges except those reserved to Extra Class. They are: 3800-3890,7150-7225, 14200-14275, 21270-21350	5 years renewable
Amateur Extra Class	20 wpm	General theory and regulations intermeditate theory, plus special exam on advanced techniques	All amateur privileges	5 years renewable

There you have the goodies that can be yours as you upgrade. Let them be an inspiration to you as you strive for *your* W.A.L.

(Worked All Licenses) award. For the very best in test guides, please use the order form in the back of this manual to order the appropriate edition of *THE FINAL EXAM*

DX CONTESTS

Assuming you have achieved reasonable competence at Lone Wolf DXing and have picked up most of the easier countries, there is a quick and easy way to boost your sagging rate of acquisition. It is during the numerous DX contests held throughout the year. At no other time are both domestic and DX stations more numerous and more eager to bat off contact after contact without the remotest intention of engaging in a civilized conversation with anyone.

The whole object of these enjoyable exercises in collective madness is to rack up as many QSO's as possible in a given period of time (usually 48 hours over a weekend with separate weekends designated for CW and phone). In the major contests such as the CQ World Wide DX Contest and the ARRL DX Contest, a generous proportion of the countries represented on the official ARRL DXCC list are on the air during the same period of time.

If you're innocently tuning a band when one of these things begins everything suddenly explodes with domestic and foreign stations frantically sending CQ TEST if the contest is on CW or CQ CONTEST if it is on phone. Small pile-ups develop everywhere and everyone is exchanging signal reports, and, depending on the particular contest, zones, states, provinces, approximate input power and so forth. Each exchange is of the "Wham! Bam! Thank you Ma'am" variety and then on to the next. Most everyone is seeking QSO points and things called multipliers (more on this later) to come up with a final score in competition with others in the world, their continent, their country, or their state or province. It is something like a runner's marathon, the *real* competitors have a good idea of who is going to participate and also who is likely to win the event. Others enter just to see if they can last the distance and just hope that their score is half-way respectable compared to those of their peers. Others, the total innocents, enter because they have dreams of glory, such as winning, based upon sheer naivete. They are soon swamped in the furor, but in the process they do learn just how competitive these contests really are. Still others, neophytes and old timers alike, could care less about a final score - they are looking for new countries, zones and prefixes.

If you are a beginner to the DX ranks, this is exactly what your approach should be. For example, if you have under 100 countries, chances are excellent that you will have the opportunity to pick up several new countries and possibly a few zones. You can't help but work a slew of new prefixes, if such is your goal. With such opportunities abounding, it becomes a matter of listening carefully to sort out the garbage QRM from those stations you need to make WAC, DXCC, WPX, WAZ or whatever.

Operating with such a goal in mind becomes a matter of strategy. Let's say you hear a really rare one such as CR5 (Principe). There *will* be a huge pile-up, no question about that. Thus if you think your skills and station are up to the task, go for the CR5, because you may not hear such a station again for months or even years. If you try and have no luck, however, and become convinced that it is a futile effort for the time being, keep tuning and you stand a better chance of picking up something else that you need.

If you wish to enter a contest as a contest entrant, you should look for announcements in magazines such as *CQ* and *73*. But if you have never participated in one of these affairs, it may be helpful if an *abbreviated* summary of several of them is presented here to give you a feel for the different kind of contests, what each is trying to accomplish, and what such contests may be able to do for you.

The major DX competition of them all is, in my opinion, the CQ World Wide DX Contest which is sponsored by *CQ Magazine* and is open to all amateur operators world-wide. In 1980 the phone section of this contest was held the last week-end in October and the CW section on the last week-end in November. Contest bands were 160 through 10 meters and both phone and CW sections last 48 hours beginning at 0000 UTC. As in most contests, there are different entry categories including single operator on both single band and multi-band and multi-operator (all-band operation only) with single transmitter and multi-transmitter. The following summary is only for single operator, multi-band operation, and the reason for this is simple: if you wish to work the contest for new prefixes, countries, or zones it will provide you the greatest opportunity to accomplish this goal. Also, if you wish to *enter* the contest, this category is the best measure of your current operator skills and the capabilities of your rig and antenna set-up. So, here are the 1980 rules:

1. Only one transmitter and one band permitted during a 10 minute period. One other band may be used during the same period to work multipliers only.

2. A multiplier of one is defined as each different zone on each band and each different country contacted on each band.

3. One's own country and zone may be worked for multiplier credit.

4. CQ zone Map, ARRL DXCC list, WAE country list, and IARU WAC boundaries are standards.

5. Contacts between stations on different continents are worth 3 points; between stations on the same continent but in different countries one point. However, for North Americans only, contacts between stations within the North American boundaries count 2 points. Contacts between stations in the same country are permitted for zone or country multiplier credit but have zero point value.

6. Final score is the result of multiplying total QSO points by the sum of one's zones and country multipliers.

7. Single operators must show a minimum of 12 hours operation to qualify for an award.

8. The transmitter must be within a 500 meter diameter circle or within licensee address and the transmitter must be directly connected to the antennas by wire.

9. All entrants are required to submit cross check sheets for each band on which 200 or more QSO's are made.

10. Each dupe found by the contest committee will result in a penalty of three additional points being removed.

11. Original logs must be sent - recopies must be accompanied by a photocopy of originals.

Check the Contest Calendar section of *CQ Magazine* in the month(s) preceding the contest for full details.

The second major contest is the ARRL International DX Contest and in 1980 the CW portion was held in the third weekend in February and the phone portion the first weekend in March. Again, bands are 160 through 10 meters and each section was 48 hours beginning 0000 hours UTC.

Operating categories are Single Operator All Band, Single Operator One Band, Multi-operator Single Transmitter, Multi-operator Multi-transmitter, and QRP. The rules for Single Operator All Band are:

(1) Contest exchange for W/VE stations (which includes 48 contiguous United States and does not include Canadian Islands of St. Paul and Sable) is the signal report and state or province.

(2) Contest exchange for DX stations includes signal reports and power (three digit number indicating approximate transmitter input power).

(3) Contacts with your own country count for multiplier credit only.

(4) W/VE stations earn three points per DX (non W/VE) QSO.

(5) DX stations earn three points per W/VE QSO and two points for other DX QSO's.

(6) Multipliers are DXCC countries worked on each band.

(7) When scoring you multiply the QSO points by the sum of the multipliers for each band.

(8) If overall score is reduced by more than two percent disqualification results. Reductions may be made for unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. If more than two percent duplicate QSOs are recorded disqualification results and for each duplicate or miscopied call sign removed from the contest log by the ARRL, a penalty of three additional QSOs will be deleted. Disqualification bars the operator from entering the contest on that mode the following year.

Full details are available in the official League magazine. Note that aside from minor differences in procedures that the major difference in scoring is that in the ARRL International DX Competition, you multiply QSO's by DXCC countries, and in the CQ World Wide DX Contest, you multiply QSO's by DXCC countries *and* zones. The difference here is that *CQ Magazine* offers the coveted WAZ (Worked All Zones) award.

CQ Magazine also sponsors another highly prized award, WPX (Worked All Prefixes). They also sponsor the Annual CQ World Wide WPX contest, which is another of the major ones. The contest reflects many of the challenges inherent in obtaining the WPX award because prefixes count as multipliers in this one. The World Wide WPX Contest presents a marvelous opportunity to gather loads of new prefixes toward your own WPX not to mention some new countries and zones.

The SSB portion of this contest took place the last weekend in March and the CW portion the last weekend in May (1981 scheduling). The contest periods permit only 30 hours of the 48 hours available for both SSB and CW portions to be used for Single Operator stations. The 18 hours of non-operating time may be taken in up to 5 periods anytime during the contest, and must be clearly indicated on the log. Multi-operator stations may operate the full 48 hours. The objective of the contest is for amateurs around the world to contact as many amateurs in other parts of the world as possible during the contest period. Entries may be made in the following categories: Single Operator All Band, Single Operator Single Band, Multi-operator (All Band *only*). For Single Transmitter category only one transmitter and one band is permitted during the same time period which is defined as 10 minutes. All transmitters must be located within a 500 meter diameter or within the property limits of the station licensee's address, whichever is greater. The antennas must be physically connected by wires to the transmitter. All bands, 1.8 through 28 MHz may be used. The exchange is an RS(T) report plus a progressive 3 digit contact number starting with 001 for the first contact. (Continue to 4 digits if past 1000). Multi-transmitter stations use separate numbers for each band.

There is a separate QRPp section in which operators using power outputs not exceeding 5 watts compete only with each other (Single Operator category only). There are awards galore in all categories.

Scoring for the Single Operator All Band category works as follows:

(1) Contacts between stations on different continents count 3 points on the 14, 21 and 28 MHz bands, and 6 points on the 7, 3.5 and 1.8 MHz bands.

(2) Contacts between stations in the same continent but not in the same country count 1 point on 14, 21 and 28 MHz and 2 points on 7, 3.5 and 1.8 MHz. (Exception: Contacts between different North American countries count 2 points on 14, 21 and 28 MHz and 4 points on 7, 3.5 and 1.8 MHz. This applies to North American countries *only*).

(3) Contacts are permitted between stations in the same country for the purpose of obtaining a prefix multiplier, but have no QSO point value.

(4) A station in a call area different than that indicated by its

call sign is required to sign portable. The portable prefix would be the multiplier as indicated in 5 below.

(5) The multiplier is determined by the number of different prefixes worked. A "prefix" is counted once during the entire contest regardless of how many times the same prefix is worked. A "prefix" is considered to be the two or three letter/number combination which forms the first part of an amateur radio call. (N1, W2, WB3, K4, AA6, WD8, 4X4, DL7, G3, IT9, KH2, KL7, NP4, 9M2, CT9, 4S7, PY7, VK4, JE3, VE3, Y32, H31, AN8, AB8, H44, KT4, etc.).

(6) Single Operator All Band score equals total QSO points from all bands multiplied by the number of prefixes worked.

(7) A station may be worked once on each band for QSO point credit. However, prefix credit can be taken only *once* regardless of the number of different bands on which the same station and/or prefix has been worked during the entire contest.

Again, check the Contest Calender section of *CQ Magazine* in the month(s) preceding the contest for full details.

There are numerous other contests throughout the year. Most of these are centered around a particular DX region or country. New DX opportunities are not particularly good in the country centered contests, but in the regionally centered ones the opportunities are good to excellent. For example, the All-Asia contest has entrants from all over Asia and the Ibero-American contest involves entrants from all over the Spanish speaking world and these are DX goldmines for W/VE stations.

You can find the dates, times, and rules of these kinds of contests in all the major magazines devoted to amateur radio. One of the best of these is the Contest Corral section of QST Magazine, a monthly feature prepared by Mark Wilson - AA2Z.

Although the list below should give you some idea of the DX opportunities afforded by some of these contests, take note that exact dates and complete rules are not included because they are subject to change. Use this list to determine whether you want to participate in a given contest to increase your various DX scores, to compete for the sake of competing, or for both reasons. The following contests are arranged by month from information contained in QST's 1980 Contest Corral.

January

(1) *French Contest* - CW; sponsored by the *Reseau des Emitteurs Francais.* French stations work the world and others work only stations with F prefixes followed by French department numbers (of which there are 95). Department numbers multiplied by QSO's equals score. Three points are granted for QSO's with one's own continent and 10 QSO points for other continents.

February

(1) *Marconi International DX Competition* - Phone; sponsored by *Associazone Radiotechnica Italiana.* Final score equals QSO's multiplied by ITU zones times special multipliers. QSO points vary depending upon combinations of frequencies, own continent, separate continent, or own country. Multiplier credit only for QSO's in own country.

(2) *CWSP International DX Competition* - CW only; sponsored by the *Grupo de CW de Sao Paulo.* World tries to work DXCC countries list and Brazilian prefixes (PY, PT, PS etc.). Score is equal to QSO's times DXCC countries times Brazilian prefixes. One's own continent is equal to one QSO point and others equal 3 QSO points.

March

(1) *All-Asia Contest* - Phone; sponsored by the Japan Amateur League. Non-Asians count 1 point for each QSO with Asian station. Multiplier is equal to number of different Asian

prefixes worked on each band. The score equals the sum of the QSO points on each band by the sum of the multipliers on each band. The CW section is in August.

(2) *Worked All Britain Contest* - 20, 15 and 10 meters only. Five points per QSO. Score equals QSO's times WAB areas, countries, and G prefixes (G, GI, GM, etc.). British stations only will send county and WAB area along with signal report. All others send signal report and QSO number.

April

(1) *SP DX Contest* - CW; sponsored by *Polski Zwiazek Krotofalowcow* (PZK). Polish stations send signal report and a two letter Wojewodztwo (province) indicator. Others send signal report and serial number. Score equals 3 points per SP QSO times number of Wojewodztwos worked (not per band). Phone contest is in the same month.

(2) *DX YL to North America YL Contest* - phone; sponsored by the YLRL. YL's only. Exchange signal report, serial numbers, and ARRL section of DXCC country. All QSO's equal 1 point. Final score equals QSO total by total number of ARRL sections and DXCC countries (an additional multipliers of 1.25 is given if you run less than 150 watts d.c. or 300 watts PEP.

(3) *Trophy H.M. The King of Spain Contest.* This is sponsored by *Agrupacio Radioaficionats Calella.* EA stations send signal report and province indicator (e.g., 599B for Barcelona). Others send signed report and serial number. Contacts with Calella counts extra multipliers. Score equals QSO points times the number of provinces per band.

(4) *Helvetia Contest* Exchange signal reports and serial number. Swiss stations (HB) will also send the abbreviations of their canton (county). Three points per QSO. Your score equals the QSO's multiplied by the number of cantons worked per band for the final score.

May

(1) *Common Market DX Contest* - Sponsored by the *Belgian Union of Radio Amateurs (U.B.A.).* This is CW with the phone contest later in month. Exchange signal report and serial number. Common Market (CM) countries have DJ, EI, F, G, I, LX, ON, OZ, and PA prefixes. Non-European stations count 5 points for CM country QSO's and 2 points for other European QSO's. QSO's with ON4UB (Belgian national station) count 25 points. Multipliers for non-European stations are call areas (not prefixes) of each CM country. ON4UB QSO's count for an extra multiplier on each band. Final score equals QSO points times the sum of multipliers per band.

(2) *Ibero-American Contest* - Sponsored by the *Union de Radioaficianados Espanoles* (U.R.I.). Phone only. Work stations from CE, CO, CP, CT, CX, C3, C9 EA, HC, HI, HK, HP, HR, KP4, LU, OA, PY, TG, TI, XE, YS, YV, ZP prefixes. Exchange signal report and serial number. One point per QSO. Final score equals QSO's times the number of Ibero-American countries worked per band.

July

(1) *Columbia Independence Day Contest* - Sponsored by *Liga Columbiana de Radioaficionados.* Exchange signal report and serial number (HK stations send signal report). Count 10 QSO points for HK contacts, 3 points for DX contacts and one point for own country. Final score equals total QSO points times the sum of DXCC countries per band. Only one QSO per band.

August

(1) *YO DX contest* - Sponsored by the *Romanian Amateur Radio Federation.* Avoid the lower 10 kHz of each band. Exchange signal reports & serial number. YO stations will send two letters indicating their county. Ten points are counted for YO QSO'S and 2 points for other European QSO's. The final score equals the sum of YO counties & European countries per band.

September

(1) *LZ DX Contest* - Sponsored by *Bulgarian Federation of Radio Amateurs,* CW only. Exchange signal report and ITU zone. Avoid lower 10 kHz of each band except only lower 5 kHz on 7 mHz. Six QSO points per LZ contact, 3 points for QSO's on other continents, and one QSO point for QSO's on your own continent. Final score equals total QSO points times the sum of ITU zones worked per band.

October

(1) *VK-ZL-Oceania Contest* - Phone contest sponsored by the *New Zealand Association of Radio Transmitters.* Exchange signal report and serial number. Count 2 points for VK/ZL QSO's and one point for other Oceania QSO's, except Oceania stations count 2 points per VK/ZL and 1 point for other non-Oceania QSO's. Final score equals QSO points times the sum of VK/ZL call areas worked per band. The CW contest is later in the month.

November

(1) *OK-DX Contest* - Sponsored by *Central Radio Club.* Exchange signal report and ITU zone. One point per QSO except OK QSO's count 3 points. Contacts with own country count for multiplier only. Final score equals number of QSO's multiplied by the sum of ITU zones worked on each band.

December

(1) Canada Contest - Sponsored by the *Canadian Amateur Radio Federation.* CW and phone combined. CW contacts in the CW bands *only.* Work stations no more than once each band and each mode. Exchange signal report and serial number, except VE1 stations must also send their province. Ten points per Canadian QSO and 1 point for others. Ten bonus points for QSO's with VE stations using TCA or VCA suffix. Multipliers are Canadian provinces or territories per

band and mode. Final score equals QSO points times multipliers per band and mode.

If you will pay careful attention to which contests take place throughout the year and which regions and countries will be involved, you should be able to make significant contributions to your DX goals. Who knows? You may even become a contest freak as well. If you do, I hope you have a strong marriage.

A SHORT COURSE ON THE DECIBEL (dB)

In Chapter One the point was made that you do not need oceans of power to work lots of DX. Let's be completely honest, however. If you are trying to crack some God awful pile-up or other, a big signal can be a definite advantage, local propagation conditions notwithstanding. In other words, if propagation is favoring the West Coast and you are on the East Coast, your monstrous antennas and maximum power transmitters can do very little for you. However, if propagation favors your neck of the woods, a great signal combined with sound operating practices will make you a competitor to be reckoned with!

Signal strength is measured in decibels, abbreviated dB. It is the measurement of the ratio of one power to another. Thus, if an input signal which is applied to an actual or theoretical amplifier is 2.5 watts and results in a 25 watt output, it has increased the power of the original signal 10 times. Such an increase may be referred to as *1 Bel* (B) or as *10 decibels* (dB). One decibel is equal to $^1/_{10}$ of a Bel. One "S" unit is about 6 decibels (6 dB).

Without going into the gory details, remember that power is proportional to voltage squared and to current squared, or:

$$P = \frac{E^2}{R} = I^2R$$

Thus *twice* the voltage or current in an antenna equals *four times* the power. This means that if a transmitting antenna producing 50 watts of RF power produces .5 microvolts in a *receiving* antenna, then 200 watts from the transmitting antenna will produce 1 microvolt in the same receiving antenna. Here the transmitter antenna power has been increased 4 times (for a gain of 6 dB).

To put this on an even more practical level, let's say that if you double the power in a transmitting antenna, a distant receiving antenna should detect a +3 dB change. So what does this +3 dB change mean in terms of what finally emerges from a receiver? A 3 dB signal increase means very little in the hf and vhf regions. On the other hand, a 5 dB signal strength increase is *quite noticeable* and a 10 dB increase of signal strength makes a very big difference with respect to intelligibility (for further details see page 25 of *The Radio Amateur Antenna Handbook,* 1st Edition, 1978 by William I. Orr - W6SAI and Stuart D. Cowan - W2LX).

So, let's consider this information further and see what it means in terms of your station's transmitting power and relative signal strength in the receiving antennas of all those DX stations you hope to work.

Input Power to Final amplifier

~~*RF Power in Transmitting Antenna*~~	*Gain at Receiving Antenna*	*Benefit*
50 watts (datum)	———	———
75 watts	1½ dB	None
100 watts	3 dB	Not significant
150 watts	4½ dB	Worthwhile
200 watts	6 dB	Significant
400 watts	9 dB	Very Significant
800 watts	12 db	Outstanding
1600 watts (P.E.P.)	15 dB	Outstanding
2000 watts (P.E.P.)	15.75 dB	Outstanding

In other words, double your power and you get blah results. Increase your power four times and you have a significant change. Also, in relative terms, it is no more significant to increase your power from 50 watts to 100 watts than it is to increase your power from 500 to 1000 watts. The relative change will be the same + 3 dB and no *significant* change. This should tell you something. Namely, don't push your transmitter or your linear right up to their limits - you will shorten the life of some very expensive final amplifier components and gain nothing in return.

Given the foregoing discussion, however, it should be obvious that a linear amplifier can add greatly to your R.F. output. Many linears can be driven by standard transmitters to 1000 watts on CW, which can produce 9 to 12 dB gain in signal strength.

But linears are expensive and you can achieve the same or slightly better results by investing your time and money in antennas, which we shall examine in the next chapter.

ANTENNAS

In the foregoing chapter we discussed dB's and the fact that all other things being equal (such as propagation and/or operator skill), that extra dB's can help you in a pile-up or in the more normal pursuit of DX. However, we were discussing expensive dB's (the kind you get by purchasing that linear amplifier). Remember the rule? Double the power and nothing much happens; quadruple the power and you have something respectable; increase the power eight times and you have made a very significant bordering or outstanding change in how your signal is received. Let's say you have a transmitter capable of running 100 watts in the CW mode. To increase your signal 4 to 8 times you're going to need a linear, right? Yep! They cost from $400 to $4500 dollars (more for certain export models). All in all, a very costly way to pump out those extra dBs.

When I first went on the air in 1957, at the tender age of 13, I labored under the common misconception that transmitter power equaled DX, provided your antenna had a relatively low standing wave ratio (S.W.R.). When I finally realized that straining my poor old Eldico TR1-TV by pushing her from 150 watts to 225 was accomplishing nil, I began to experiment with antennas in earnest. Thus, I replaced my 20 meter dipole with a 2 element 20 meter monobander that I made from the remains of another antenna. This gave me about 5 dB forward gain over my dipole and by pushing the little TR1-TV to 200 watts, I came up with an extra dB for a total of 6 dB, which made a pronounced difference in my success at making more DX contacts.

However, over the years I have installed and used dipoles, the 2 element monobander just mentioned, a triband trap vertical, (I had to!), a long wire (again, I had to!), a two element triband mini-quad, and a full sized two element triband quad.

I would like to discuss how these antennas worked for me and perhaps you can better relate my observations to the slightly more technical material which will be presented later in this chapter.

I will never forget the formula:

$$L_F = \frac{468}{f\ \mathrm{MHz}}$$

The formula means L*ength* (in F*eet*) equals 468 divided by frequency in megahertz. It is the formula for determining the length of a half wave dipole, one of the simplest of the horizontal wire antennas to construct. It is also one of the most reliable and effective among this group of antennas. As best as I can recall, I finished off DXCC with the aforementioned 2 element monoband Yagi. But with 3 dipoles cut for 20, 15, and 10 meters respectively and *65 watts*, I worked a slew of DX between 1958 and 1959. Even after I put up the beam, the two remaining dipoles kept on helping me to put new DXCC countries into my station logs. I never experienced a moment's trouble with my dipoles. All were suspended between trees by plastic cord and door springs so when storms passed through, the swaying of the trees wouldn't overstress the antennas and bring them down. My dipoles always seemed somewhat less directional than the classic front to back "figure eight" would suggest. In other words, they performed rather well straight off the ends of the antenna(s).

My next step was to purchase a 20, 15, 10 meter tri-band beam from a manufacturer who shall remain nameless, if not blameless.

What a disaster! You were supposed to tune the ugly looking devil by means of adjustable clamps. The transmitter stubbornly refused to resonate on all bands and nothing that I tried ever changed this. In despair I took the God awful contraption off the top of our barn and proceeded to turn the basic hardware into something that would work. This turned out to be the 2 element 20 meter Yagi previously mentioned. By this time I had also acquired a 250 watt transmitter and an excellent double conversion, 21 tube superheterodyne receiver and had a respectable station, even if it didn't put me on a par with the "big guns." It was a pleasure to have an antenna with directional capability and which nulled QRM off the sides and back. My signal reports also went up an average 2 S units.

Although college and other matters resulted in my being off the air for eighteen years, when I finally got back on with a TR4-C transceiver the first antenna I used was, of necessity, a multiband trap vertical. Here I first heard the refrain, "Oh yeah, verticals. They're the ones that radiate equally poorly in all directions, right?" At the time I couldn't have agreed more, but to be perfectly fair about it, I had it mounted improperly and had no underground radial network. Had I gotten it higher in the air and included the radial network, in all likelihood I would have had a decent vertical ground plane antenna, which many accomplished DXer's swear by. All I did, however, was swear and spent most of my time thinking about what my next antenna would be.

Concerned that the restrictions prevailing in my section of the Island community I live in would not permit me the luxury of a full size Yagi or quad, I decided upon a compromise - a mini-quad.

It turned out to be an excellent little antenna. The boom was only 54 inches long, the elements eleven feet long, and it was mounted on nothing more than a 40 foot high, heavy duty telescoping pole. I turned it with a TV rotor system and it looked no more formidable than some TV antennas. Signal attenuation off the sides and back was good if not spectacular, and it had reasonable forward gain and front to back ratio. With it I got back into the DX business in a big way, picking up exotic ones such as P29 (Papua, New Guinea), UØ (Tanna Tuva), A7 (Qatar), FK8 (New Caledonia), 3B8 (Mauritius), and 3B6 (Agalega).

Months passed happily with this set-up but a little voice kept nagging me. Once, years back, when I tore into a pile-up, gave it my all, and emerged hours later with nothing to show for it, I had promised myself that one day I would own a really fine antenna and a linear amplifier. So I finally decided to do something about my old promise and purchased a linear amplifier that would go the legal limit on CW and SSB. Then came my 37th birthday and my sweet, understanding XYL, Linda, gave me a fantastic present; a full-sized 2 element tri-band quad. I gulped when I saw the size of it and wondered how I would ever conceal the presence of such a monstrous, peculiar looking contraption.

Inspiration came, however. I painted the spreader arms, the tower, and the rotor flat black and raised the whole she-bang to the back and one side of the house. The great, ungainly "box" was in front of a grove of very tall trees and the result was that you could barely see it from the road in front of the house and the neighbors couldn't see it at all. Best of all, there was *no TVI* in the neighborhood or I would surely have been forced to dismantle a very expensive piece of hardware.

Once the behemoth was in place, a whole new world opened up. Transmitting and receiving directivity was fantastic, the front to back ratio outstanding, the null on the sides equally so, and the forward gain was much in excess of any other antenna I had ever used. In most small pile-ups, I was often number one in line, in moderate pile-ups I was often anywhere from number one to number five, and in the screaming, mind-bending pile-ups, I rarely spent more than ten to fifteen minutes cracking it, *if* I wasn't among the *first* to do so. Heaven at last! But even though I think everything is just peachy for the moment, I still don't qualify for "big gun" status. The reason? My fantastic antenna is *still* not good enough even with 1000 watts on CW and 2000 watts P.E.P. on SSB pumping into it. There is more, much more, that can be done to improve the antenna set up and nothing more that can be done to improve the transmitter/linear amplifer combination. I am now dealing with the old "bottom line" which, in my case, happens to be *Effective Radiated Power* (ERP).

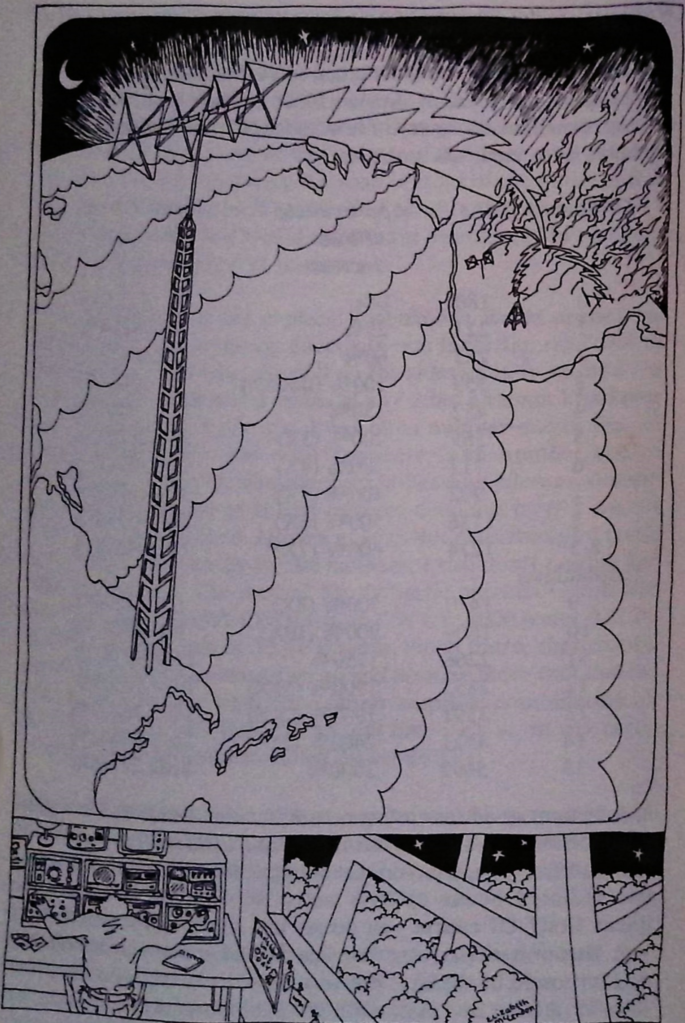
Let's look at this concept with respect to a multi-element beam antenna such as a Yagi or quad. Such transmitting antennas can be rated in terms of decibels or power gain (remember 3 dB equals two times the power).

For example, the output of a transmitter is 500 watts and the antenna line loss is 25 watts. With a power gain of 3, the antenna has an effective radiated power of 3 X 475 or 1425 watts. (For a more detailed look at this concept see page 513 of *Electronic Communication,* 4th edition, 1980 by Robert L. Shrader, W6BNB).

The following table, which is taken from *The Final Exam- Extra Class Guide,* 1st printing August 1980, by Dick Bash, KL71HP, gives an excellent summary of how much effective radiated power increases with each dB increase:

Decibel	*E.R.P.*	*Approximate Power Increase*	*Actual Power Increase*
0	180	0%	0%
1	227	25%	25.98254%
2	285	60%	58.48932%
3	359	100% (double)	99.52623%
4	452	150%	151.18864%
5	569	200% (3X)	216.22777%
6	717	300% (4X)	298.10717%
7	902	400% (5X)	401.18723%
8	1136	500% (6X)	530.95734%
8.5 (tribanders)	1274	600% (7X)	607.94578%
9	1430	700% (8X)	694.32824%
10	1800	900% (10X)	900.00000%
11	2266	1150%	1158.92541%
12	2853	1500% (16X)	1484.89319%
13	3591	1900% (20X)	1895.26232%
14	4521	2400% (25X)	2411.88643%
15	5692	3000%	3162.27766%

A 4 element quad (assuming no transmission line loss) has a gain of 12 dB over a dipole. Thus if you take a transmitter capable of 180 watts output, it would, according to the chart, have an effective radiated power of 2853 watts. So why buy the expensive linear first? Of course you do get into much bigger numbers if you throw a linear into the line behind a four element "big daddy" quad or the like. But why not settle for *singeing* the trees over in Africa and Asia with the addition of a really superior antenna? Must you really burn down vast tracts of jungle over there by adding a linear? My advice is get the linear *if you must,*



But why not settle for singeing the trees in Africa...

but *don't bother to use it until you really need it,* such as when propagation starts to close down during a really dynamite QSO or when you are facing a pile-up of truly cosmic proportions.

Let's now take a look at a number of antennas that you might select for DX work and compare them to a reference dipole:

Antenna Type	*dB Gain Over Half Wave Dipole*
Ground Plane	-1.8
5/8 Wave Vertical Antenna	+1.2
2 Element Yagi Beam	+5.0
3 Element Yagi Beam	+8.0
4 Element Yagi Beam	+10.0
2 Element Quad Beam	+7.0
3 Element Quad Beam	+10.0
4 Element Quad Beam	+12.0
Bi-directional Rhombic	+10.0
Undirectional Rhombic	+13.0

Now disregarding the dB gain figures for a moment, let's take a look at some of the advantages and disadvantages of the following major types of antennas.

Antenna	*Advantages*	*Disadvantages*
Ground plane	Inexpensive, easy to install, takes minimum of space, requires little adjustment or tuning, omnidirectional, low angle of radiation.	To be truly effective it needs an underground radial system, has negative gain over reference dipole, and is not selective with respect to receiving, therefore you hear more QRM and QRN.

½ Wave Dipole	Easy to construct, inexpensive, some directivity	Not broadbanded enough to handle the bandspread on 160/80 thru 10 meters. Must cut it for desired portion of the band to hold down SWR
⅝ Wave Vertical	Same attributes as ground plane, but provides 3 dB gain over it and 1.2 dB gain over a reference dipole.	Same disadvantages as the ground plane
Yagi	Highly directive with respect to transmitting and receiving. They null the undesireable signals off the back and sides and enhance the strength of received signals. Good forward gain. You can add elements to enhance all of the characteristics just mentioned.	Generally large and bulky. Requires a lot of space. Requires a tower and rotor. Can be difficult to match with feedline, and susceptible to wind and ice damage.

Quads	They share all of the advantages of the Yagis and provide a 2 dB gain over Yagis with the same number of elements.	Same disadvantages as the Yagis with a few more of their own. Quads have a vertical dimension as well as a horizontal one. They are extremely susceptible to wind and ice damage.
Rhombics	Unterminated rhombic has 1 dB gain over 4 element quad. Shares all other advantages of Yagis and Quads.	Very directional and unrotatable. Thus, you need many to cover all directions. Typical rhombic has each leg *4 wavelengths long!* You need to own 1/2 of Montana or Texas because of space requirements.

The creative use of antennas is the single most potent means an individual has available to upgrade his or her station for each dollar spent. To this end I thoroughly recommend *The Radio Amateurs Antenna Handbook* which was mentioned earlier in this chapter. It doesn't cost a great deal and would be a bargain to the amateur operator at twice the price. A close look at its contents should dramatically improve your stations DX capabilities. For those with a *strong* math background, the Bible of antennas is *Antennas* by John Kraus (published by Mc Graw - Hill). Bash Educational Services has it in stock. It's expensive ($31.95 + $3.25 + $2.08 sales tax if you live in California)! This superb text is *not* for everyone. While it's geared for our engineer colleagues, it has all you'd ever need to know on antennas.

Another *easy,* authoritative text is *Practical Antennas* by Scelbi. This book uses tables and requires *zero math.* Cost is $9.95 + $2.50 shipping (Californians add 65¢ for sales tax) if you wish to order it from Bash Educational Services. This book is great and is written for folks with no background at all.

DX SHACK AIDS

By the time that you become a DX addict there are certain things that you will need about the shack to make things easier for you. If you use a rotatable directional antenna of any kind, a great circle *map* of the world should be prominently displayed within easy eye-shot of your rig. The advantage of most great circle maps is that they are (for U.S. amateurs) centered upon the geographical center of the United States, and the margin of error for any other location in the U.S. will be at most 2% and a margin of error of this magnitude is inconsequential.

You also need to know what DXpeditions are scheduled and when they are to take place. So, keep the major amateur magazines and/or DX bulletins and post clippings or notes about their dates, times, and frequency(s) of operation. Use tacks, Scotchtape$^{\text{T.M.}}$, or clipboards but keep the information right in front of your nose. If your memory fails you when one of the choice DXpeditions of the decade is on, you may never have the opportunity to work the location again. The same goes for rare DX operations reported in the magazines and DX bulletins - if you don't keep the dates, times and frequencies constantly in mind, you may miss the opportunity of a lifetime.

As I mentioned in a previous chapter, DX contests are a terrific way to pick up new countries, zones, prefixes, or whatever you may be seeking. It is a good idea to post *all* upcoming contests so that you don't forget them when the time rolls around for them!

By all means, keep replacement parts handy, particularly final amplifier tubes for your transmitter and linear since these have the greatest loads placed upon them. Also keep a back up supply of tubes or other critical components for any piece of gear which is likely to require it. For Pete's sake, don't forget the fuses because they have the distressing habit of blowing when they are most needed. Just imagine losing an 8Z4 (Saudia Arabia/ Iraq Neutral Zone) over a 50¢ bit of wire and glass.

Forget these items at your peril or you are inviting ole Murphy to strike. Remember Murphy and his immutable Laws? The ones that go like this:

(1) In any field of scientific endeavor anything that can go wrong will go wrong.

(2) Left to themselves, things always go from bad to worse.

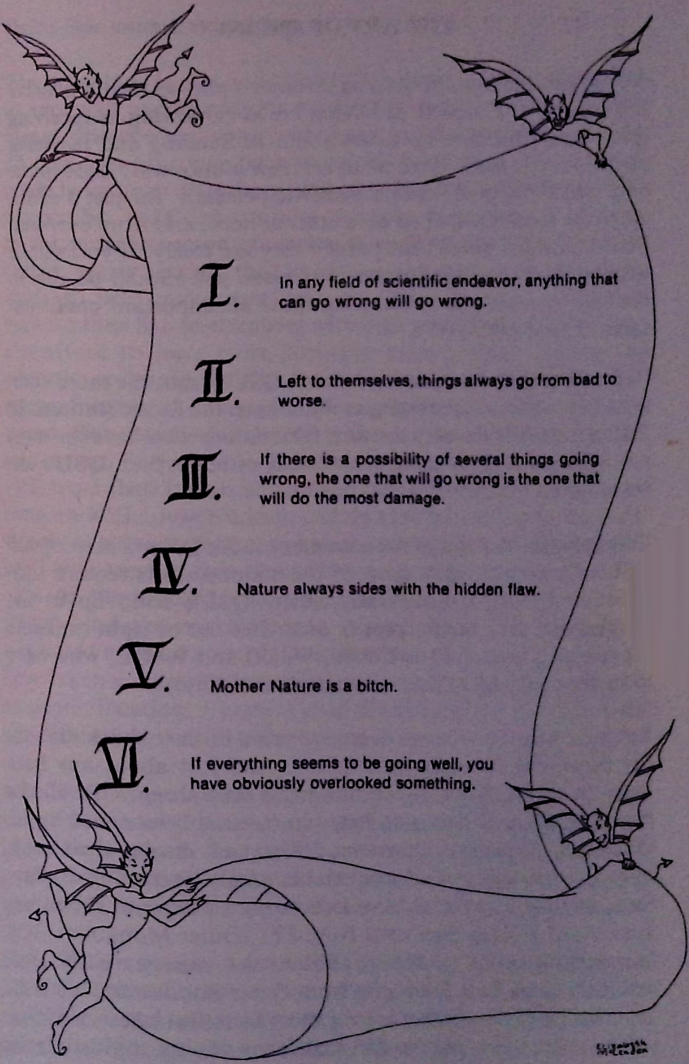
(3) If there is a possibility of several things going wrong, the one that will go wrong is the one that will do the most damage.

(4) Nature always sides with the hidden flaw.

(5) Mother Nature is a bitch.

(6) If everything seems to be going well, you have obviously overlooked something,

You really should post a copy of ole Murphy's axioms somewhere in your shack. When you think about it, Murphy and the average ham shack are just made for each other (and in Murphy's favor).



I. In any field of scientific endeavor, anything that can go wrong will go wrong.

II. Left to themselves, things always go from bad to worse.

III. If there is a possibility of several things going wrong, the one that will go wrong is the one that will do the most damage.

IV. Nature always sides with the hidden flaw.

V. Mother Nature is a bitch.

VI. If everything seems to be going well, you have obviously overlooked something.

THE ART OF QSLING

Along with the thrill of blasting through a pile-up to snare a rare DX station, few aspects of DXing are as rewarding as receiving QSL cards. But have no doubt about it! Sending and receiving cards today is much more of an art than it once was. Back in the days when you could send a domestic postcard for just 3 cents, amateurs routinely QSLed each other at home *and* from overseas. Postal bills just weren't the burden they are today. If you will be mindful of this as this chapter progresses, you should be able to increase your success in receiving those all important confirmations of your DX QSO's.

Depending upon how you view them, QSL's from the more common DX can be as interesting as those from the exotic stations. In fact, it is usually the easy-to-work DX stations who have the most attractive cards. Like stamps, art work, or butterflies, QSL's can be collected for their beauty.

Certainly the first aim of most amateur radio DXer's is to obtain QSL's for awards, since most of the major awards require such proof of QSO's. Consequently, many QSL's wind up in file drawers and shoe boxes, kept in order but out of sight (imagine the files of Lloyd and Iris Colvin, W6KG and W6QL, who have more than 340,000 QSL's stored alphabetically!).

But most hams have some degree of pride in their shack and enjoy decorating its walls with QSL's. And just about any ham loves to show off his rig to non-hams and along with all the meters, knobs and dials, non-hams are invariably intrigued by the QSL cards. Sometimes, however, DXers who display their cards have an erroneous view of what makes a truly interesting display. Sure, another ham might have a coronary on the spot if he spies your bland looking little card from JT1 (Outer Mongolia), 3C0 (Annnobon) or ZA (Albania). But to the average visitor who wouldn't know East Frogmore from Outer Boondoxia, it's dull. The best cards for display are the most beautiful ones - a visitor will be much more interested in that fancy, six-color glossy from Japan than the call-letters-only, el cheapo QSL card from the

Outer Boondoxia expedition.

The point here is that collecting QSL's doesn't have to be limited to rare and exotic stations needed for awards. That DL (Germany) that you can work with 5 watts and a wet noodle or that JA (Japan) who comes back so quickly may have a QSL card that could hang in an art gallery, and cards like that are a lot of fun to receive. So, in DXing consider no prefix to be "junk." Stations in the more common countries often have the most beautiful QSL's, partly because they know they are common and use nice cards to help make sure they get QSL's in reply and partly because they live in countries with high standards of living and can afford to have more attractive cards printed. Among the countries generally having the most attractive QSL's are Germany, Sweden, Switzerland, Denmark, Holland and especially Japan. But a really handsome card is apt to come from almost any nation. For example, I shall never forget a QSL I received in 1960 from then Italian Somaliland (now Somalia). The card was from an XYL, Jere Nudson, call sign I5GN. On a gorgeous, obviously expensive stock, was a water color painting of a leopard's head with the call sign descending vertically down the card just back of the leopard, and underneath, in elegant script in the Italian language was *Leopardo, nome somalo "Scebel"* (which translated means Leopard, Somalian Name "Scebel"). Jere must have taken great pride in sending such a gorgeous card from such an exotic location. I know I shall always treasure it as the most beautiful of my entire collection.

Assuming that you want a good response to the QSL's you send out, there are some simple and basic techniques for guaranteeing a high rate of return. Start with *your card* being inviting and interesting, the kind that attracts the attention of the DX station, whether he receives hundreds or thousands of U.S. cards per year.

First, there is design. As mentioned previously, outstanding looking QSL's stand a better chance of getting a response than do plain black-and white ones printed on tissue paper. Here are some ideas for unique and interesting cards:

(1) Use commercially available picture postcards with your call sign professionally overprinted. A pretty view of your town or scenic view from your area are two possible ways to approach the matter. Or, you may have your own color photo of a suitable scene done in picture postcard fashion. There are several printers who advertise in the major amateur magazines that do color reproductions (from either slides or color negatives.)

(2) Color, of course, is more expensive than black-and-white when reproducing photos. Scenic views usually don't do very well in black-and-white when compared to the results obtained in color. In black-and-white, it's best to stick with something like a picture of you in your shack, something other hams enjoy looking at, even if you aren't a statuesque blond bombshell of a YL.

(3) Art is excellent for QSL's. If you can draw or know someone who can, consider having a card drawn up. Perhaps its a cartoon, a scene from your community, a rendering of your house, or even your apartment (UA6LGG has a drawing of his 12 story apartment with an arrow pointing to his QTH on the seventh floor).

(4) With non-photo QSL's, try to use color. One color is less expensive, but two or three colors will certainly add to the beauty of the card. Make certain colors are deep but bright (unless pastel shades are preferable for some reason). Use glossy stock, if possible, but make certain that the printer knows how to use glossy/Kromekote stock. If he doesn't, the results can be uneven printing and cheaper looking QSL cards.

(5) Remember that the chief cost in printing is setting up the equipment and changing colors. Once the press is running, there is little difference in cost between 500 and 1,000 cards. So, get plenty of QSL cards printed, at least 1,000 or more. See what kind of deal your printer will give you on large quantities of cards. Having many cards printed *today* will save you a lot of money in the future. Printing prices are going up every day!

(6) Make certain that your QSL card contains more than QSO information and your address. Always have your *CQ WAZ* zone, ITU zone, and your *county* printed on your card. Many foreign stations collect counties and would like to know your zone. Include any noteworthy awards that you may have collected. Don't be shy about having something about yourself on there - your occupation, your hobbies, your age (best to use a blank space for that), your rig (if you don't change it much). You can even include a description of your town. Like all hams, foreign hams like to read about other hams and they like QSL's that are interesting to read as well as to look at. Remember, though, to keep the words simple for the sake of the foreign stations with a limited knowledge of English.

Once you have a decent QSL, make sure you use it properly. It *should* be unnecessary to point out but according to report after report from rarer DX stations, many Americans still neglect to provide return postage when they QSL direct. Always include IRC's or foreign postage stamps with direct QSL's and also include a self-addressed envelope, unless you want the card sent back as a postcard (which is less expensive). Of course, always include a self-addressed stamped envelope when QSLing through a domestic QSL manager.

IRC's are I*nternational* R*eply* C*oupons*, which can be obtained at most U.S. Post Offices. The last cost I am familiar with (March, 1981) is 42¢, but like everything else, they increase in price all the time. The coupon is exchangeable by the foreign amateur for stamps equal to the cost of one ounce sent first class surface mail. Thus, for air mail responses you will have to send from two to four IRC's. The Foreign and United States Callbooks include up-to-date listings of how many IRC's are needed for an air mail letter. Note that some nations, like East Germany, do not accept IRC's at their post offices. Also keep an eye out for people such as QSL managers, DX associations, and DX stations who are willing to sell IRC's at a discount, usually 10 to 15 cents off face value when sold in quantity.

If you're a stamp collector, you can obtain mint (unused) foreign stamps for the self-addressed stamped envelope). Stamp collectors will like this because they will get the stamps back, albeit canceled. DX stations like this because they do not have to go through the step of turning in the IRC's to purchase stamps. For some DX stations, return postage is virtually a necessity for a direct response. A caution here is to not send money (also known as "green stamps") through the mail for postage unless a DX station specifically indicates that this is O.K. Receiving American money in the mail is a crime in some countries. So, if "green stamps" are not permissable in a particular case, go to a stamp shop, preferably one that can tell you how much postage you will need.

When sending overseas mail to DX stations *never* put the callsign of the station on the envelope (in some countries, the postal people have a habit of collecting IRC's and "green stamps." No use tempting them and losing a return card). If possible, use very plain postage stamps to discourage would-be collectors. When using DX QSL Bureaus, never use IRC's or any other type of compensation because the bureau worker may also remove same.

If possible, try to refrain from sending QSL's direct to most Communist block countries, because they definitely prefer you to use their bureau system. For example, *all* QSL's to the U.S.S.R. are sent via Box 88, Moscow, U.S.S.R.

Fortunately, the majority of QSL's need not be sent direct. After all, most active DXers would be hard pressed to afford it. The best bargain for sending loads of cards is the ARRL. If you are a member, you get to send as many as you want for $1.00 a pound, and there are lots of QSL cards in a pound. There are also QSL services, which send out the cards faster but charge 5¢ to 8¢ per card. W3KT has the oldest and most famous of these services, which is justly noted for its reliability.

A nice touch for any QSL, direct or via the bureau, is a hand written message to the DX station. It's all the better written in his own language. A note in Arabic on the back of your QSL card to an HZ station (Saudi Arabia) will raise eyebrows and be most pleasing. It's not difficult to do, either. K3CHP publishes a DX QSL Guide (Mason and Dearing Printing, Mount Rainier, MD. 20822) which contains 12 commonly used sentences in 54 different languages, including such exotic tounges as Sinhala, Swahili, Ethiopic, Burmese, and Hawaiian. They are rendered in the native alphbet. Imagine being able to tell a native of HS land (Thailand) in Thai, "Thank you very much for the QSO. I would be most grateful for your QSL because I need your card for DXCC."

But even if you can't dash off a note in Afrikaans or Lao, write *something* on your QSL card to make it more personal. A card simply filled out, signed, and shipped is a cold thing. A small note commending the DX station on the quality of his signal or mentioning something discussed in the QSO makes the card warmer and is liable to draw some attention. Even if it was a 10 second contest QSO, tell the station how you did, what his QSO number was, and ask how *he* did. For the real clincher, express the hope that you will be able to have a "real" QSO some day.

When filling out QSL cards, do so carefully and use internationally accepted techniques. Give the date as *day-month-year*. Express the month in Roman numerals. When writing the number 7, put a stroke though it (7̵)to distinguish it from a one(1). Do the same with the letter Z (Ƶ) to avoid confusion with the number two(2). Cards sent *via the bureau* should have the recipient's call letters in the *upper left-hand corner*.

In order to *receive* DX cards, you will have to be on file with your QSL bureau. Some bureaus want five-by-seven inch self-addressed stamped envelopes on file, while others want you to send money and they supply the envelopes and postage. You might want to help them out by including mailing labels to your address. Save the envelopes the bureau sends to you. If they are not overly damaged they are reusable. To find out how your district's bureau works, check the Callbook for the address and drop a note to the manager, asking for information. Always include a self-addressed-stamped-envelope when corresponding with bureaus - they are non-profit operations manned by volunteers. Be sure to have an envelope always on file even if you are in an in-active period. Otherwise your late arriving QSL's will be heading for the local dump. Someday when you're active again you may wish you had those long lost cards.

Before leaving the subject of QSL's, let us not forget the SWL's, the thousands of shortwave listeners around the world who send those cards with peculiar looking "call-signs" chock full of numbers. Do not look down on them or ignore their requests for a QSL. Many are hams-to-be and they should be encouraged in their pursuit. In many Iron Curtain countries, SWL's are an organized group of radio enthusiasts who work for awards and are formally recognized and even licensed by their government.

Remember that QSLing is an art and will become even more of one as postal rates continue to increase and it becomes ever more difficult for DX stations to sustain the damage to their family budgets. If you pay careful attention to the suggestions made in this chapter, you should have much better than average success in receiving your hard earned QSL's

LANGUAGES AND DX

Americans are famous, perhaps even infamous, for their inability to communicate in other tongues. This inability is only overshadowed by their *lack of desire* to communicate in other languages. Europeans with the equivalent of an American high school diploma usually have a basic working knowledge of at least one other language besides their own and frequently others as well. Given this state of affairs it is fortunate indeed that English is the standard language of international radio communication. On another level, however, this is a deplorable situation because it makes U.S. amateurs more provincial and less cosmopolitan than many of their overseas counterparts.

An interesting facet of DXing, pursued unfortunately by too *few* Americans, is picking up at least some facility in a foreign language. But most of us have, in high school, been exposed to a European language such as French, Spanish, or German and can recall some of the basics. That bit of fading knowledge and a dictionary or travelers' phrase book are really all you need to begin talking to DX stations in their native tongues.

Foreign stations with limited knowledge of English tend to limit their QSO's to descriptions of their rigs and the weather. But they will often open up and enter into interesting and rewarding conversations when the American speaks even a little of their language. Sometimes, foreign hams will be so pleased to have a real QSO that they will follow it up with a letter and perhaps a photo of themselves. This is somewhat common among East European stations who seem thirsty for friendships with Americans. If you happen to be a stamp collector, the friendships that you build up in this way can result in new acquisitions for your collection, especially if your overseas friend is also a collector who enjoys trading stamps.

"But," you protest, "learning foreign languages is tough and speaking and understanding them is even worse." This is *not* necessarily true. Let's assume that you took German in high school. You remember some basic words and maybe some verb endings, and you have a basic feel for the German word order, for example Sind Sie zu Stadt gekommt? (Have you to town come?). To acquire some more vocabulary and a sense of any of the European languages, pick up phrase books. Cover Publications, 180 Varick St., New York City, N.Y. 10014, has a good collection of inexpensive guides in the "Say It In. . ." series, ranging in price from $1.00 to $1.60 each. Berlitz also has a fine but more expensive series. Julian Friedman Publishers of London (through Mayflower Books, 575 Lexington Avenue, New York City, N.Y. 10022) has a splendid $2.00 paperback, "*The Illustrated International Phrase Book*," that covers English, German, French, Italian, Spanish, Greek, Japanese and Dutch.

Such books are, of course, limited in scope and vocabulary but are enough to get you started. For a wider knowledge of a language, paperback dictionaries are readily available.

When beginning to use another language on the air, there is one sentence that you should always keep handy, something to this effect: "I am a beginner and do not speak the language well." In French, for example, *"Je suis un commencant et je ne parle bien le Francais."* That is a signal, usually understood, for the other station not to use sophisticated words and sentences. Often, the DX station will then, when he is able to, throw in English words for what he thinks you will not understand in his own language.

A good way to increase your working knowledge of a language is to get help from someone who speaks it, either a native or a local teacher. Better yet, if you run across a foreign ham who speaks superior English the chances are he will be more than pleased to help you out with his own language over the air.

If you speak or manage to learn to speak a second or third language with some fluency, you are in a wonderful position to do some really creative Lone Wolf DXing. Some DX stations, particularly those who operate on phone, never work amateurs except those who speak their native language. Thus, if you speak Spanish you have myriad opportunities to work members of the Spanish speaking world that you would otherwise be unable to converse with.

If you are not fluent in the language, be sure to use a version of "I am a beginner..." at the outset of the QSO. Otherwise the DX station may unleash a torrent of his *lingua franca* upon you with disastrous results. When and if this happens, the meaning of the word *humbled* will be swiftly brought home to you.

80 METER DXING

While most hams think of 80 meters as a place to chat with friends in the home state or a state or so away, there is an ever growing number of DXer's who find 80 a challenging and exciting band. Where once it was the exclusive territory of a relative handful of die-hards who didn't mind having their earphones blown off their heads by static crashes, the advent of Five Band DXCC some years ago brought many newcomers to the land of QRN and weak signals.

It is static that gives the DXer the biggest headache, both literally and figuratively, on the 80 meter band. For much of the year electrical storms make long-haul communications difficult, if not impossible. Consequently, 80 meters is more of a winter-time band, and the faithful are usually found digging for the weak ones with a heater going in the shack (Note: although this discussion focuses entirely on 80 meters, it should be understood that both the 160 and 40 meters share some characteristics with 80 meters).

Eighty meters is, of course, a night-time band. Propagation there is such that long-distance QSO's are impossible in daylight. But as soon as the sun goes down, signals from far off start slipping through the noise.

While East Coast hams are apt to hear Europeans rolling in at sunset, the rule of thumb for working DX is to look for signals emanating *from locations where it is dawn or just before dawn.* Your signal will shoot eastward through well-established darkness better than it will early in the evening. Even though you may hear scads of Europeans just after sunset, they will have a hard time hearing you, unless you're pushing a "full gallon" into one of those antennas that need lights to warn low-flying aircraft. Consequently, U.S. stations fare best from 0300 to 0600 UTC in their quest to cross the pond into Europe, Africa, and Western Asia.

Naturally, to fire signals westward, Americans must wait till near dawn for the longest hauls. Despite the long distances involved, it is not all that difficult for an East Coaster to work VK (Australia), ZL (New Zealand) or JA (Japanese) stations if conditions are right and the antenna performs decently off both ends.

There are other considerations that the 80 meter DXer must keep in mind. Back in grammar school, we learned that when it's winter here, it's summer south of the equator. With summer come the static crashes that are the bane of the 80 meter DXer's existence. So, in working the Southern Hemisphere one must be either in the QRN prone territory or sending towards it. Hence, the best times of year for making the hop across the equator are *mid-spring* and *mid-autumn,* when chances are best for a low QRN level on both ends.

Working DX on the CW end of the band is tough going if you do not hold an Extra Class license. DX stations cluster in the bottom 15 kHz of the band and almost all DXpeditions operate from that frequency range (even though the standard expedition frequency on higher bands is 25 kHz from the low end). This tendency to stay at the bottom of the band is a hold-over from the pre-incentive licensing days when the bottom of the band was for DX-ing and the rest was for rag chewing and traffic handling. Unfortunately for holders of General and Advanced class licenses, traditions are hard to change.

Nonetheless, enough DX stations wander above 3525 kHz to give the non-Extras a good shot at the sport *and* 5BDXCC. Often the DX stations above this frequency are seeking to talk to nearby stations, unaware that their signals can and do reach long distances. Many Europeans are excited, and some shocked, when a U.S. station responds to their CQ.

As on other bands, propagation conditions vary on 80 meters. On some nights, signals from Eastern Europe will boom into the eastern U.S. at S-9 and above or from Japan and New Zealand into the West Coast. On other nights signals will be weak. But rarely does 80 meters fold up completely as do the higher bands.

In some ways, equipment for operating 80 meters is simpler than on the higher frequencies. A dipole, for example, is an excellent antenna for 80 meter work. It has to be long, of course, requiring at least 135 feet in a straight line. If you can get the thing above 60 feet high, a dipole is especially effective on this band.

Better still is a vertical, not the short multiband variety, but one at least a quarter wavelength in height - no small structure. And it should have plenty of *buried* radials in all directions. The key here is that the vertical will produce a better angle of radiation than will the dipole, a factor of major importance in long haul work.

Extra power is more necessary on 80 meters than on the higher bands. While you can struggle across the pond on 50 watts, it's best to run a rig of at least 200 watts or more (remember - quadruple the power and pick up that significant 6 dB gain). But as on other bands, the power you run reflects the challenge you seek. It's not too tough to plug in a KW and work DX. There's more skill and perserverance required, and more reward in knocking off DX contacts when running modest power. Of course, there is *less* expense, too!

Once you become jaded with DXing (after you pass some major goal with respect to the awards you have attained) try 80 meter DXing. The challenge should get the old competitive juices flowing once more.

DX AWARDS

The final chapter of this book will cover awards. These bright and very impressive pieces of paper are a testament to the skill, perserverance, and determination of the DXer. Any amateur who has earned various awards, such as WAZ, WPX, and/or DXCC, can be justly proud of his accomplishment. But there are many other awards besides these well known and highly publicized three. Some of these other awards are relatively easy to obtain, while others make the "big three" look easy! Shooting to attain any of them can be immensely rewarding.

Therefore, I have included quite a few of them to whet your appetite and to close this work, hoping in doing so to present you with the challenge to win some for yourself. Seeking them will make you a more skillful and knowledgeable DXer. Also, while we haven't included every award available (there are literally hundreds of them), I have included enough to keep you busy for awhile.

At this point I must pause to give a special "thank you" to Charles J. Ellis, PhD, for his permission to include some of the awards that are found in his marvelous publication, *DX Awards Guide*. Charles has worked many long hours to collect the data on some of these awards. If you'd be interested in more information on *DX Awards Guide*, please write Charles at this address:

Charles J. Ellis
DX AWARDS GUIDE
P.O. Box 1136 - Welch Station
Ames, Iowa 50010

The awards included here are but a small portion of those offered in *DX Awards Guide*. Please also note that the data for the A.R.R.L.'s DXCC award is lengthy and involved. We have included a mere summary for the DXCC award. Complete details are available from the A.R.R.L. on the DXCC award. So, here's a sampling of Dr. Ellis' material.

DX AWARDS

I wish to express my thanks to the American Radio Relay League and *CQ Magazine* for allowing me quote portions of the rules on DXCC, WAZ, and WPX. Complete details on these awards are available from the A.R.R.L. and from *CQ Magazine*.

ALL AFRICA AWARD

SEND TO: Awards Manager, F. van Greunen, ZS1IT, South
African Radio League, PO Box 3911, Cape Town
8000, Republic of South Africa

AWARD RULES:

1. Applicant must contact stations with the above listed prefixes and 25 different stations from the countries listed in No. 6 below.
2. All stations contacted must be fixed land stations.
3. Islands around Africa do not count.
4. All contacts must have been made after November, 1945.
5. A minimum CW report of 338 or a phone report of 33 is required.
6. Countries include: Algeria, Angola, Sudan, Congo Kinshasa, Burundi, Rwanda, Somali Rep., Cameroons, Egypt, Eritrea, Central Africa Republic, Rep. of Congo Brazzaville, Gabon, Chad, French Morocco, French Somaliland, Ivory Coast, Dahomey Rep., Volta Rep., Mauritania, Senegal, Niger Rep., Rep. of Gunea, Gambia, Chana, Kenya, Liberia, Libya, Mozambique, Nigeria, Zambia, Malawi, Portuguese Guinea, Sierra Leone, Rhodesia, Spanish Morocco or Ifni or Rio de Oro or Spanish Guinea, Tangier, Tanzania, Tunisia, Togoland, Uganda, Botswana, Lesotho, Swaziland, South West Africa, Rep. of South Africa (ZS1-AS6), Transkei, Bophuthatswana.

BRAZILIAN YL AWARD

SEND TO: A/C PT2LS, POB 07/0004, 70.000 Brasilia, DF, Brasil

AWARD RULES:

1. Contacts must have been made on or after July 1, 1975.
2. Contacts must be made from the same OTH using any band or mode and in accordance with international regulations on amateur radio.
3. BRYLA net meets Wednesdays 1900 GMT, 14.250 kHz.
4. DX stations must contact 12 YL stations from different countries including 3 continents *and* 8 YL stations from Brazil.
5. Brazil stations must contact 20 YL stations from Brazil *and* 5 YL stations from different countries including 3 continents.

ALL MEDITERRANEAN COUNTRIES

SEND TO: Elio Donna, ZP5CE, PO Box 512, Asuncion, Paraguay

AWARD RULES:

1. Applicant must contact certain Mediterranean Countries (list below).
2. Award is made in three classes as follows: Class A requires 41 countries; Class B requires 30 countries; Class C requires 20 countries; all classes require at least one ZP contact.
3. All contacts must have been made after 15 May 1952 and be confirmed.
4. No QSLs are to be submitted, but the list of contacts must be certified.
5. No mode or band restrictions are made.
6. Countries are: A2, A5, AC3, C31, CP, HA, HB, HB0, HV, JT, LX, OE, OK, TL, TT, TZ,UC2, UD6, UG6, UH8, U18, UJ8, UL7, UM8, UO5, XT, XW8, YA, ZE, ZP, 3D6, 4U1, 5U7, 5X5, 7P8, 7Q7, M1, 9J2, 9N1, 9U5, 9X5.

COUNTRIES, ZONES AND CONTINENTS

SEND TO: DX-Awards Guide, P.O. Box 1136 Welch Station,
Ames, Iowa 50010

AWARD RULES:

1. Applicant must work 30 countries from the DXCC list (QST, ARRL), 30 Zones from the WAZ list (CQ) and 6 continents from the WTW (73 Magazine) list, 66 stations minimum. All Countries, Zones and Continents must have been current at the time any claimed contact was made. At least four contacts per continent are required for each category.
2. Only one station per continent or zone, regardless of band used, will be allowed.
3. No mode or band restrictions except repeater and satellite contacts will not be counted.
4. Stations contacted in one category listed in No. 1 above may not be claimed in another category.
5. Endorsements are available for single modes or bands but only if requested with application.
6. No contact with a station in the country where applicant operated while making any claimed contact will be allowed.
7. Credit will not be allowed for contacts made as a participant in any national or international amateur radio contest.
8. All contacts must have been made within a 25 mile radius of the location from which the earliest claimed contact was made.
9. All contacts must be verified by sponsor and only by sending confirmations to DX-AWARDS GUIDE accompanied by funds (US stamps or IRCs) sufficient to pay in full

certified (return receipt demanded), return, airmail. While in the possession of the sponsor all reasonable care will be exerted to protect them. Nevertheless, all applicants by submission hereof agree to hold DX-AWARDS GUIDE, its publisher, officers and employees harmless for any damage to or loss of these confirmations.

10. All contacts must have been made 1 January 1979 or later and within two years of the earliest claimed contact.
11. A photo of applicant and the station used must accompany the application. One or two photos will be acceptable but a substantial portion of the equipment used must show in either case.
12. Ten IRCs to offset handling and mailing costs are required.
13. Use of the form provided in *DX AWARDS GUIDE* is mandatory for the *Countries, Zones, and Continents* award. However, a form will be sent upon receipt of an SASE and a note stating that you are a purchaser of *The Complete Idiot's Guide to DX*.

DIPLOME DE L'UNION FRANCAIS

SEND TO: Edmond DuBois, F9IL, Aubencheul-au-Bec,
59265 Aubigny au Bac, Box 7, France

AWARD RULES:

1. All contacts must have been made since April 1, 1946.
2. Contacts must have been made with countries on the DUF list.
3. "Austral Lands Continent," FB8W, FB8X, FB8Y and FB8Z may be used in place of a missing WAC continent.
4. Fee charges: DUF I 6 IRCs for 5 countries, 3 continents

   DUF II 8 IRCs for 8 countries, 4 continents

   DUF III 10 IRCs for 10 countries, 5 continents

   DUF IV 12 IRCs for 16 countries, 6 continents

   These charges may be combined: DUF I + DUF II = 7 IRCs

   DUF I + DUF II + DUF III = IRCs

   All four DUFs = 10 IRCs

Diplome de L' Union Francais Country List as of 1 April 1979. This list is furnished by the Award Manager and all spelling is his.

France	F
Corsica	F/FC
Monaco	3A
Andorra	C3
French For	D1/DA
Algeria	7X
Sahara	7X
Tunisia	3V
Morocco	CN
Rep Cen Afr	TL
Congo	TN
Benin	TY
Ivory Coast	TU
Gabon	TR
Guinea	3X
Mali	TZ
Mauritania	5T
Niger	5U
Senegal	6W
Tchad	TT
Upper Volta	XT
Cameroun	TJ
Togo	5V
Djibouti	J2
Abu Ail	J2
Madagascar	5R
Nossi Be Is	5R
Ste Marie Is	5R
Mayotte	FH
Comoros Is	D6
Reunion	FR
Glorieuses Is	FR
Tromelin Is	FR
Europa Is	FR
Juan do Nova I	FR
French Guyana	FY
St Pierre & M	FP
Martinique	FM
Guadeloupe	FG
St Martin Is	FS
St Barthelemy	FG/FS
Clipperton Is	FO
New Caledonia	FK
Loyalty Is	FK
Chesterfield I	FK
Wallis	FW
Futuna Is	FW
New Hebrides	YJ
Windward	FO
Leeward Is	FO
Toubouai Is	FO
Rapa Is	FO
Marquese Is	FO
Gambier Is	FO
Touamotou Is	FO
Adelie Land	FB8Y
Kerguelen	FB8X
St Paul & Am	FB8Z
Crozet Is	FB8W

DX AWARDS GUIDE, P.O. Box 1136 Welch Station, Ames, Iowa, 50010, claims copyright privileges.

DIPLOMA, SUD-AMERICA AWARD

SEND TO: Elio Donna, ZP5CE, Radio Club Paraguayo Award Manager
PO Box 512, Asuncion, Paraguay

AWARD RULES:

1. Applicants must work the following areas in accordance with the Class desired:
   Class A: 33 countries and 6 ITU zones;
   Class B: 25 countries and 6 ITU zones;
   Class C: 18 countries and 5 ITU zones;
   One ZP contact is obligatory in any case.
2. ITU zones applicable include 12,13,14,15,16,73.
3. All contacts must have been made after May 15, 1952.
4. No QSLs necessary for submission.
5. No mode or band limitations specified.

DX CAPITALS OF THE WORLD

SEND TO: Mr. Bill Gosney, 73 Magazine, 2665 North 1250 East,
Whidbey Island, Oak Harbor, WA 98277

AWARD RULES:

1. Sponsored by the editors of 73 Magazine, the DX Capitals of the World Award is made available to licensed amateurs the world over.
2. To be valid, all claimed contacts must have been made on or after January 1, 1979. There are no band or mode restrictions, although special recognition will be given for single band or mode accomplishments if requested in the application.
3. To qualify, you must work and confirm fifty (50) different national cities of the world. Only those countries which appear on the WTW DX listing qualify. Should a country with a national capital city not commonly known be contacted, you may list it on your application; the awards editor reserves the right to make a final determination as to its acceptance for award credit.
4. To apply, make a self-prepared list of contacts made in prefix order. Indicate the station callsign, date and time in GMT, band and mode of operation, name of the capital city, and DX country.
5. Do not send QSL cards! Have your list of contacts verified by two amateurs, a radio club secretary, or a notary public.
6. Send your application list and award fee of $3.00 or 8 IRCs to: Bill Gosney WB7BFK, 73 Awards Editor, 2665 North Busby Road, Oak Harbor, Whidbey Island WA 98277 USA.

DXCC-QRPP AWARD

SEND TO: Hugh F. Aeiker, WA8CNN, 5 Keiffer Dr.,
St. Albans, WV 25177

AWARD RULES:

1. Issued to any amateur for confirmed contacts with 50 ARRL countries. Power input of five watts or less must have been used by applicant and indicated as such on the log data and application. To apply, send GCR list including power input and equipment used, with $1.00 or 5 IRCs.

DX-YL CERTIFICATE

SEND TO: Emma Berg, W0JUV, RFD 2 Box 171, Lawrence, KS 66055

AWARD RULES:

1. Available to licensed YL operators only for working 25 other licensed women operators outside their own country on or after 1 April 1958. US and possessions are counted as separate countries as well as Alaska and Hawaii.
2. Contacts do not have to be with 25 different countries, just 25 DX YLs.
3. All QSOs must be made from one QTH or within a 25 mile radius.
4. Do *not* send QSL cards for this award.
5. Send copy of log to DX YL custodian named above.
6. Endorsements: Stickers will be awarded for each group of 10 additional DX YLs subject to the same confirmation as above.
7. YLs in the US may send postage stamps in any amount to help with cost of mailing their certificates, but no charge is made for the certificate.

(These rules furnished through the courtesy of QST)

DX-YLCC

SEND TO: Phyliss Shanks, W2GLB, 7 Lake Circle Drive,
Vicksburg, MS 39180 or I8KDB or DL3LS
(DX stations send to nearest one)

AWARD RULES:

1. Worked fixed or mobile stations operated by 100 different DX YLs, no more than 2 for any one country; total 100 contacts for certificate.
2. QSOs must be from same QTH not to exceed 25 miles from base station.
3. Any band or mode allowed; no cross-band QSOs.
4. Contact with all DX-YLs in countries on ARRL countries list to be counted if confirmations clearly indicate station was operated by a licensed woman amateur operator.
5. QSLs to accompany all requests for certificates with a list in alphabetic order by countries of call, name, band and mode. Enough postage or IRCs must be sent to finance card return via first-class mail. YLRL *will not be responsible for any loss or damage to cards.*
6. Endorsements are available.
7. Decisions of custodian regarding interpretation of these rules or as later amended shall be final. These rules furnished through the courtesy of *QST.*

EU-DX-D AWARD

SEND TO: Walter Geyshalter, Box 1328, D-8950 Kaufbeuren
West Germany

AWARD RULES:

3. EU-DX-D

3.1 The EU-DX-D is an award that may be claimed annually. First year of issue is 1964.

3.2 The EU-DX-D is issued in the following classes: Telegraphy - Telephony (AM/FM/SSB) - Mixed Modes. For the "mixed" class at least 30% of the contacts must be made in a different mode.

3.3 The basic idea of the award is a proportional combination of European and non-European contacts worked in the course of one calendar year.

3.3.1 A minimum of 50 points is required for the EU-DX-D. 20 points must be obtained by contacts with European countries and 30 points by contacts with countries outside Europe. All these contacts have to be made within one calendar year.

3.3.2 All amateur bands (HF and VHF/UHF) may be used. Each different country counts one point (on 1.8 MHz and 3.5 MHz two points). A country can only be counted once regardless of the band(s) used. The countries are determined by the "European Countries List" and ARRL's DXCC Countries List."

3.3.3 Stickers are available for each additional block of four European plus six non-European countries within the same calendar year.

3.4 The EU-DX-D may be claimed every year anew. Each year's score may be added to obtain the EU-DX-D 500 and EU-DX-D 1000. The DARC issues a seal of merit for 500 points and a trophy for 1000 points. There is no limit as to the number of years.

EUROPEAN PREFIXES AWARD

SEND TO: Alfons Neihoff, DJ8VC, Ernst-Hase-Weg 6
4407 Emsdetten, West Germany

AWARD RULES:

1. The EU-PX-A is issued by the Diplom Interessen Gruppe, DiG, Germany.
2. The basic certificate is issued for contacts with 100 different European prefixes on or after Jan. 1, 1969. There are no band or mode restrictions. Endorsement stickers are available for 150, 200, 250 and 300 prefixes.
3. (The Prefixes in the sense of these applications are for instance: DL 1, DL 2, etc. to DL 0, DJ 1, DJ 2, DJ 0, F 1, F 2 etc. EA 1, EA 2, etc. OZ 1, OZ 2 etc. YO 1, YO 2 etc. All European Prefixes according to the WAE-and/or DXCC country list are valid.)
4. Upon desire and with proof that all QSOs were made in 2-way-CW, which must be stated by word of honor, the sticker "CW-AWARD" can be received.
5. No QSL cards, only a certified list is required. Fee: DM 5.00 or IRCs, endorsement stickers 3 IRCs. The Award is available also to SWLs.

HELVETIA 26 AWARD

SEND TO: Walter Blattner, Post Office Box 450,
6601 Locarno, Switzerland

AWARD RULES:

1. The Helvetia 26 Award has been instituted by the Union of Swiss Short Wave Amateurs (USKA) with the object of furthering friendly relations and the competitive spirit between its members and radio amateurs abroad.
2. Foreign amateurs shall submit QSL cards showing evidence of contacts with stations in each of the 26 cantons and half-cantons of the Swiss Confederation on any bands between 1.8 and 30 MHz.
3. All contacts made on or after 1 January 1979 shall count for the award. Both stations shall use the same band and the same class of emission.
4. The award may be obtained for contacts made and confirmed in the manner prescribed in Art. 2, for the following classes of emission: 1. Telegraphy/Telephony (also mixed); 2. Radioteletype; 3. Slow-scan television.
5. QSL cards submitted in accordance with Art. 2 shall bear clear evidence of the location (Canton) of the Swiss station at the time of the contact. Any QSL card from a Swiss station operating from a temporary or portable location at the time of the contact must show the Canton of such location in order to be recognized for the award.
6. In addition to the QSL cards, a signed list shall be enclosed with the application, with the following data for each contact: Call sign and location (Canton) of the Swiss sta-

tion worked, date and time (UTC), frequency band, class of emission used.

7. The abbreviations of the 26 Cantons are the following: AG Aargau, AI Appenzell Inner Rhoden, AR Appenzell Outer Rhoden, BE Berne, BL Basle-Country, BS Basle-City, FR Fribourg, GE Geneva, GL Glaris, GR Grisons, JU Jura, LU Lucerne, NE Neuchatel, NW Nidwalden, OW Obwalden, SG St. Gall, SH Schaffhausen, SO Solothurn, SZ Schwyz, TG Thurgau, TI Ticino, UR Uri, VD Vaud, VS Valais, ZG Zug, ZH Zurich.

NEW ZEALAND AWARD

SEND TO: ZL2GX, 152 Lytton Road, Gisborne, New Zealand

AWARD RULES:

1. Applicant must contact 101 ZL stations.
2. This award is available to every amateur *except* ZLs.
3. All contacts must have been made after 8 Dec 1945.
4. The following contacts must be made in the call sign area indicated: ZL1-35; ZL2 - 35; ZL3 - 20; ZL4 - 10 and one contact with a ZL "territory" including New Zealand, Antartica, Chatham Island, Kermadec Island or Campbell Island. This one contact may be substituted by 20 additional ZL contacts not already claimed in which case applicant must provide the data in the space below.

100 OK AWARD

SEND TO: Central Radio Club, Awards Manager, Post Office
Box 69, 113 27 Praha 1, Czechoslovkia

AWARD RULES:

1. Applicant must have confirmed QSOs with at least 100 different Czechoslovkia stations.
2. All QSOs must have occurred on or after 1 January 1954.
3. Endorsement stickers are available.
4. QSL confirmations must be included.

POLSKA AWARD

SEND TO: Polski Zwiazek Krotkofalowcow, Skrytha
pocztowa 320, 00-950 Warszawa, Poland

AWARD RULES:

1. This award is offered in three classes, Class III requires contacts with 20 provinces of Poland, Class II 35 contacts and Class I 49 contacts.
2. Contacts must be confirmed by QSL card unless all contacts are made during the SP DX contest (CW, SSB) in the same year.
3. All QSOs must have occurred since June 1, 1975.
4. The following abbreviations may be used in the log data above: SP1: KO, SL, SZ; SP2: BY, GD, EL, TO, WL; SP3: GO, KL, KN, LE, PI, PO, ZG; SP4: BK, LO, OL, SU; SP5: CI, OS, PL, SE, WA; SP6: JG, LG, OP, WB, WR; SP7: KI, LD, PT, RA, SI, SK, TG; SP8: BP, CH, KS, LU, PR, RZ, ZA; SP9: BB, CZ, KA, KR, NS, TA.

R-6-K AWARD

SEND TO: The Krenkel Central Radio Club of the U.S.S.R.,
Post Office Box 88, Moscow, U.S.S.R.

AWARD RULES:

1. Applicant must contact on SSB, CW or PHONE amateurs in the following areas: Europe, Africa, North America, South America, Asia, Oceania, one contact each; European USSR, 3 contacts needed from: UA1 UN1 UW1 UA2 UC2 UP2 UQ2 UR2 UA3 UW3 UV3 UA4 UW4 UB5 UO5 UT5 UY5 UA6 UW6; Asiatic USSR, 3 contacts needed from: UD6 UG6 UF6 UL7 UI8 UJ8 UH8 UM8 UA9 UW9 UV9 UA0 UW0.
2. This award is given in three classes: First class: contacts on the 3.5 MHz band only; Second class: contacts on the 7.0 MHz band only; Third class: contacts on any amateur bands.
3. All contacts must have been made after May 7, 1962.
4. Cost of the award is 1 ruble or 14 IRS's and covers the forwarding registered postal expenses.

R-100-0 AWARD

SEND TO: The Krenkel Central Radio Club of the U.S.S.R.Post Office
Post Office Box 88, R-100-0 Moscow, U.S.S.R.

AWARD RULES:

1. Applicants must contact 100 regions/oblasts of the Soviet Union.
2. The R-100-0 Award consists of three classes:
   a. First class: contacts on 3.5 mHz band only
   b. Second class: contact on 7.0 mHz band only
   c. Third class: contacts on any amateur band
3. All contacts must be cw or phone only.
4. Minimum reports of RST 337 or RS 33 are required.
5. All contacts to have been carried out after January 1, 1957.
6. Cost of the award is 1 ruble or 14 IRC's which covers the forwarding registered postal expenses.

WAC/YL

SEND TO: Miriam Blackburn, W3UUG, Box 2, Ingomar, PA 15127

AWARD RULES:

1. This award is sponsored by the Young Ladies Radio League.
2. Applicant must contact stations on the six continents operated by licensed women operators.
3. Use of any and all amateur bands is authorized; crossband contacts are permitted.
4. All contacts must be made from the same location. Within a given community, one location may be defined as from places no two of which are more than 25 miles apart.
5. QSL cards must be submitted along with sufficient postage or IRCs to finance their return by first-class mail.
6. YLRL will not be responsible for any loss or damage to cards submitted.
7. Decisions of the WAC/YL custodian regarding interpretation of these rules as here stated, or later amended, shall be final.

WAZ AWARD

SEND TO: DX Editor, Post Office Box 205, Winter Haven,
FL 33880 or to the WAZ Award Mgr., Leo Haijsman,
W4KA 1044 Southeast 43rd St., Cape Coral, FL 33904

AWARD RULES:

1. The official CQ WAZ Zone Map will be used in determining zone boundaries.
2. Confirmations must be accompanied by a list of claimed zones showing the call letters of the station QSOed and the mode. The list should also show the applicant's name, call letters, and complete mailing address clearly.
3. All contacts must be made with licensed land based, amateur stations working in authorized amateur bands.
4. Any altered or forged confirmations will result in permanent disqualification of the applicant.
5. In addition to the conventional certificate for which any and all bands and modes may be used, specially endorsed and numbered certificates are available for phone and single sideband operation. The phone certificate requires that all contacts be two-way phone and the s.s.b. certificate requires that all contacts be two-way s.s.b.
6. If, at the time of the original application, a note is made pertaining to the possibility of a subsequent application for an endorsement or special certificate, only the missing confirmations required for that endorsement need be submitted with the later application.
7. Include with the application $5.00 or 25 International Reply Coupons to defray the cost of the certificate.

8. Decisions of the CQ DX Awards Advisory Committee on any matter pertaining to the administration of this award shall be final.
9. Zone Maps and/or WAZ applications are available from the DX Editor or from CQ for a self addressed stamped envelope (SASE) or simply a self addressed envelope without a stamp and 1 IRC.

5 BAND WAZ AWARD

SEND TO: WAZ Manager, 76 North Broadway,
Hicksville, NY 11801

AWARD RULES:

1. Applicant must submit a minimum of 150 confirmations as the first plateau of this award.
2. Confirmations (QSLs) must be submitted for verification to the WAZ Award Manager.
3. Confirmations must be dated January 1, 1979 or later.
4. Applications for additional zones above 150 shall be made in multiples of 10. Each such application must be accompanied by a processing fee of $1.00 for each 10 zones.
5. Each applicant must provide proof of a previously awarded WAZ certificate by indicating the certificate number on each application form.
6. Checks must be made payable to: The WAZ Award Manager, W4KA, Leo Haijsman.
7. IRCs will be accepted at the current rate of exchange for postage and application processing.
8. Sufficient postage must be included for the safe return of all QSL cards by air or certified mail. This amounts to $3.00 for US amateurs and certified mail and $4.00 for foreign applicants and airmail.
9. A handsome certificate will be issued to all applicants attaining the first plateau of 150 zones confirmed.

WPX & WPX HONOR ROLL

SEND TO: R.F. Huntington, K6XP, 5014 Mindora Dr.,
Torrance, CA 90505

AWARD RULES:

1. **Applications**
   - A. All applications for WPX certificates (and endorsements must be submitted on the official application form CQ 1051A.
   - B. All QSO's must be made from the same country.
   - C. All call letters must be arranged in alphabetical order and all call letters must be shown.
   - D. All entries must be clearly legible.
   - E. Certificates are issued for the following modes and numbers of prefixes: Mixed, 400 prefixes confirmed; CW, 300 prefixes confirmed; SSB, 300 prefixes confirmed. Cross modes not permitted.
   - F. Cards need not be sent but must be in the possession of the applicant. Any and all cards may be requested by the Assistant DX Editor or the CQ DX Committee.
   - G. The application fee for each certificate is $5.00 (US) or 25 IRC's.
   - H. All applications should be sent to the Assistant DX Editor of CQ Magazine.
2. **Endorsements**
   - A. A prefix endorsement is issued for each 50 additional prefixes submitted.
   - B. Band endorsements are available for working the following numbers of prefixes/bands: 1.8 MHz - 35; 3.5 MHz - 150; 7 MHz - 250; 14 MHz - 300; 21 MHz - 300; 28 MHz - 250.
   - C. Continental endorsements are given for working the following number of prefixes in the respective continents: North America

126; South America 88; Europe 146; Africa 80; Asia 68; Oceania 51.

D. Endorsement applications must be submitted on CQ Form 1051A. Use separate applications for each mode and specify the mode on the application.

E. For prefix endorsements list only additional call letters confirmed since the last endorsement application.

F. A self-addressed stamped envelope or self-addressed envelope with 1 IRC is required for endorsement stickers. The endorsement fee of $1.00 is additional.

3. **Prefixes**

A. The 2 or 3 letter/numeral combinations which form the first part of any amateur call will be considered the prefix.

B. Any difference in the numbering, lettering or order of same shall constitute a separate prefix. The following would be considered different: W2, WA2, WB2, WN2, WV2, K2 and KN2.

C. Any prefix will be considered legitimate if its use was licensed or permitted by the governing authority in that country since Nov. 15, 1945.

D. A suffix would designate portable operation in another country or call area and would count only if it is the normal prefix used in that area. For example, K4IIF/KP4 would count as KP4. However, KP4XX/7 would *not* count as KP7 since this is not a normal prefix. Suffixes such as /M, /MM, /AM, /A and /P are not counted as prefixes. See also rule 3E. An exception to this rule is granted for portable operation within the issued call area. Thus contacts with a special prefix such as WS2JRA/3 would count for W3.

E. All calls without numbers will be assigned an arbitrary 0 plus the first two letters to constitute a prefix. For example, RAEM counts as RA0, AIR as AI0, UP0L is UP0. All portable suffixes that contain no numerals will be assigned an arbitrary 0. For example, W4BPD/LX counts as LX0 and WA6QGW/PX counts as PX0.

4. **WPX Honor Roll**

All general rules for WPX apply toward Honor Roll credit with the following exceptions:

A. Only current prefixes may be counted toward HR standings; those prefixes to be listed and updated annually in CQ or available from the Assistant DX Editor.

B. Special issue prefixes, i.e. 3C, 4A, 0F, etc. will be considered current during their existence and for five years after the date of last issuance after which time they will be deducted as credit for Honor Roll standings.

C. Honor Roll applicants must submit their list of current prefixes (entire calls required) separate from their regular WPX applications. Forms are available for this purpose and their use is highly recommended. WPX HR applications may be obtained by sending a self-addressed stamped envelope (or 1 IRC) to the Assistant DX Editor. A separate application must be made for each mode.

D. A filing charge of $2.00 (US) is required for each original WPX Honor Roll application.

E. Endorsements for the Honor Roll may be made for 10 prefixes or more. An SASE or IRC should be included.

WORKED ALL EUROPE

SEND TO: DARC DX Awards, Box 1328, D-8950 Kaufbeuren
West Germany (FRG)

AWARD RULES:

1. WAE stands for "Worked All Europe", a certificate awarded to amateur radio stations for contacts with almost all European countries and islands on different amateur bands. The WAE is also available to SWLs. The rules apply accordingly.
2. The award is issued in three classes: WAE III, WAE II, and WAE I. The classes are based on the number of European countries worked and a score of country points added up from the different bands (cf. 2.3).
3. Applicants for the basic WAE III have to submit QSL cards proving two way contacts with at least 40 different countries of the "European Countries List". At the same time the cards must prove a minimum of 100 country points.
4. WAE II requires 50 countries with a total of at least 150 points. For WAE I 55 countries and 175 points are needed.
5. After receiving the basic award only the necessary additional confirmations are required for a higher class.
6. Each European country counts one country point on each of the six HF-bands (1.8 MHz, 3.5 MHz, 14 MHz, 21 MHz, 28 MHz). Only four bands per country, however, are eligible for the point score. Five points per country can be achieved by working the same station on five bands. Two additional points per country can be obtained by a contact on one of the VHF/UHF bands. Stations outside Europe

may claim 2 points for each European country on 1.8 MHz and 3.5 MHz.

7. The WAE is issued into two divisions:
   Exclusively telegraphy, i.e. two way CW contacts.
   Exclusively telephony, i.e. two way AM/FM/SSB contacts.
8. Holders of WAE I get a special WAE badge.

WORKED ALL LICENSES

SEND TO: Bash Educational Services
P.O. Box 2115
San Leandro, CA 94577

AWARD RULES:

1. This award has nothing to do with DX but is a neat award anyway!

2. Available only to holders of a U.S. Extra Class license.

3. Applicants must submit $3.00 in cash/money order/check *plus* a photocopy of their Extra Class license. The photocopy of the license will be returned with the certificate. Do *not* send your original license!

4. No endorsements are available. This award is in recognition of the work done in acquiring an Extra Class license.

WORKED ALL NORWEGIAN COMMUNES

SEND TO: WANCA Award Manager, Sverre J. Schmidt LA1QK
Post Office Box 3, N-9801, Vadso, Norway

AWARD RULES:

1. Applicant must work 25 different Norwegian communes. There are over 454 communes and 5 Norwegian Arctic/Antarctic areas which qualify for contacts.
2. A special award will be issued to those who can work *all communes and all Arctic and all Antarctic areas.*
3. Only contacts made on or after January 1, 1975 will count toward this award.
4. All bands and modes may be used but no crossmode contacts or contacts via repeater will be allowed. QSOs via satellites will be counted.
5. Minimum reports must be RST 338 or RS33.
6. Mobile or portable contacts count but the QTH must be stated on the QSL.
7. QSLs are not required; GCR apply.
8. Award fees: Nkr 30 (10 IRCs) for the basic award; Nkr. 10 (3 IRCs) for endorsement stickers. Latter are available for increments of 25 contacts.
9. Record book listing all Norwegian communes and areas for Nkr 15 (3 IRCs) is available from the address shown above.
10. Certificates are issued for: mixed mode, CW only, SSB only, all RTTY, all SSTV, Novice, Mobility (only contacts with mobile or portables) and All WANCA.
11. All Fees are contributed to the LA5LG Fund for Norwegian Blind-Handicapped Amateurs.

WORKED ALL PACIFIC

SEND TO: ZL2GX, 152 Lytton Road, Gisborne, New Zealand

AWARD RULES:

1. Applicant must work thirty of the Oceanic countries listed below.
2. All contacts must have occurred on or after 1 November 1945.
3. Special endorsements are available for single band or mode operation.
4. ZL2GX represents the NZART, the national amateur society of New Zealand.
5. The list of Oceanic countries for this award includes: Port Timor, Philippines, Adelie Land, New Caledonia, French Oceania, Wallis Island, New Hebrides, Baker/Howland/American Phoenix Islands, East Carolines, West Carolines, Mariana Islands, Marcus Island (Minami Torishima) Guam, Hawaiian Islands, Johnston Island, Midway Island, Palmyra Island, American Samoa, Wake Island, Marshall Island, Java, Sumatra, Borneo, Celebes, West Irian, Australia, Lord Howe Island, Willis Island, Macquarie Island, New Guinea, Norfolk Island, Papua, Nauru, Christmas, Cocos, Gilbert, Ellice, British Phoenix Islands, Fiji, Fanning and Washington Islands, Solomon Island, Tonga, Pitcairn, Sarawak, Brunei, North Borneo, North Cook Islands, South Cook Islands, Somoa, Tokelau Islands, Kermadec Islands, Niue Island, New Zealand, Chatham Island, Auckland and Campbell Island, Antarctica (ZL5 only).

WORKED ALL SM LAENS I

SEND TO: SSA Diploma Manager, Ostmarksgatan 43,
S-123 42 Farsta, Sweden

AWARD RULES:

1. Swedish amateurs are not eligible for this award.
2. European amateurs must work two stations in each of the eight Swedish call areas, SM1 to SM7 inclusive and SM0. Non-Europeans need contact only one station per area.
3. Contacts may be made with SM, SK and SL stations.
4. All stations must be land-based.
5. All contacts must have been made post-World War II.
6. Contacts may be made on any authorized amateur band using any type of emission.
7. No endorsements are available.
8. Contacts must be verified by two amateurs, a local radio club secretary or a notary public.

ABOUT FACE!

I hope that you've enjoyed this cookbook of DX. Now it's your turn! What do *you* want in our 2nd edition? Want to see more awards? Do you have some particular award in mind that you feel we should have mentioned? Know some real hot tips that will help the green DXer's introduction to DX to be a bit easier? Well, now's your chance to share those neat ideas, etc.

Please use the enclosed form to send your ideas in to us. Your ideas will be reviewed and the ones that will help the most people will be included in the next edition of *The Complete Idiot's Guide to DX* along with a special mention of those who sent in their tips. There's a ton of useful knowledge locked up in that head of yours. Let's share it with others! We weren't *born* knowing all these neat little items, after all. Your experiences and the skill that you've developed from them will be a heck of a help to the next guy.

If you have a manuscript typed out (double spaced, please) on some aspect of ham radio and want it reviewed for possible publication, consider sending it to Bash Educational Services via Certified Mail - Return Receipt Requested. We are looking for manuscripts on fast-scan television, reading schematics, a layman's introduction to RTTY, what every ham needs to know to work OSCAR, etc. Ham radio needs books that are written for the folks that don't make a living in electronics! If you can come up with a humorous and informative book, we may be able to publish it for you. So, get to that typewriter and start pounding away!

Thanks for your support. It's people like yourself that make these books possible. If there is anything that we at Bash Educational Services can do to make your hobby more enjoyable for you, please give us a call at (415) 352-5420 between 10 AM and 6 PM *California time,* Monday through Friday.

Bash Educational Services, Inc.
P. O. Box 2115 • San Leandro, CA 94577 • 415-352-5420

ERRATA SHEET

There seems to be no way to catch all typographical errors and silly mistakes that are made during the publishing of a book. We are listing below the errors that I've found myself or have been brought to my attention. Heavens forbid that there should be others, but if you see any, please drop me a line and let me know. Thanks!

Page 13 - Line 5	Talk about booboo's! Here I am preaching to you about how you must learn your prefixes and I said that LX3 stands for Liechtenstein. Wrong! Liechtenstein is HB0 and Luxembourg is LX. Sorry!
Page 23 - Line 29	Soviet Union club stations nowadays always sport a UK prefix, not K. There are a few exceptions to this rule, however.
Page 73 - Line 9	Change *RF POWER IN TRANSMITTING ANTENNA* to *INPUT POWER TO FINAL AMPLIFIER*. Also note that even though some of the values listed would be illegal in ham radio, the ratios between input power and gain are correct.
Page 78 - Line 21	These power values should be expressed in terms of input power to the final amplifier.

ADDITIONAL MATERIAL

IT'S ABOUT TIME!

It would seem that an explanation of Greenwich Mean Time is needed. This is now properly termed *Coordinated Universal Time* and is abbreviated **UTC** (seems wrong, I know, but that *is* the correct abbreviation!) and is also referred to by those who don't know or can't accept the new term as Zulu Time. It is the international standard time usage based upon the Greenwich meridian (0° longitude line). By tuning to WWV at 2.5, 5.0, 10.0, 15.0, or 20.0 MHz, you can hear a recording of the correct time from the National Bureau of Standards. They have a station in Hawaii (called WWVH) and one in Fort Collins, Colorado. On these frequencies, the National Bureau of Standards broadcasts standard time signals that have an accuracy far greater than ever needed in ham radio.

WWV and WWVH broadcast signals continuously during each day. Each second is marked by a signal or tick. The 59th second is omitted intentionally. A voice announcement of the time is given each minute at the 55 second point and is followed by the tick on the minute. The announcement sounds like this:

"At the tone, sixteen hours fifty-nine minutes Coordinated Universal Time."

A lot of useful information is broadcast over WWV, including information about sunspot activity and solar flux indices as well as significant weather. If you would like to receive more information on the contents of WWV, please write them at this address:

Radio Station WWV
Fort Collins, Colorado 80524

But why should you concern yourself about UTC? As an example of the problem that hams face, the time in Frankfurt, Germany is substantially different from that in San Leandro, California. Hams need a standard time by which they can log their contacts with each other. No where is this more true than with DX contacts. Therefore, each contact that you make with another ham should be entered in your logbook according to the time you *started* your QSO in UTC and also according to whatever the correct UTC date is. Remember, when it's one o'clock in the morning in Frankfurt on November 25th, it's 4 o'clock in the afternoon on November 24th in San Leandro! Thus you can see what happens when hams use their local time to record their QSO's and put these times on their QSL cards - chaos! The moral of the story is to **always put the UTC date and time of the start of your QSO on your QSL cards!** Many DX stations will throw your card away if you put local time on it, by the way.

Another point worth mentioning is that you should record the time in the 24 hour format (sometimes called the "military" format). Using this method, time is given as 4 digits for the hour and minute. For example, 8:15 AM would be 0815, noon would be 1200, 3 PM would be 1500, 10:35 at night would be 2235, etc. Midnight is handled 2 ways, either as 2400 or as 0000. I prefer 0000 myself because one minute later it's 0001 and I start from zero (so do all digital clocks I've ever seen that are in the 24 hour format). Put another clock in your shack (preferably a digital clock) that is in the 24 hour format and set it to UTC. That way you never get messed up with time changes. Also note that all DX bulletins list their information in UTC/GMT/Zulu time.

On the next page, please find a time conversion chart for the 48 States. This should make your life a bit easier if you have had problems understanding the time differences.

TIME CONVERSION CHART

P.D.S.T.	M.D.S.T.	C.D.S.T.	E.D.S.T.	U.T.C.	P.D.S.T.	M.S.T.	C.S.T.	E.S.T.
5 P.M.	6 P.M.	7 P.M.	8 P.M.	00 00	4 P.M.	5 P.M.	6 P.M.	7 P.M.
6 P.M.	7 P.M.	8 P.M.	9 P.M.	01 00	5 P.M.	6 P.M.	7 P.M.	8 P.M.
7 P.M.	8 P.M.	9 P.M.	10 P.M.	02 00	6 P.M.	7 P.M.	8 P.M.	9 P.M.
8 P.M.	9 P.M.	10 P.M.	11 P.M.	03 00	7 P.M.	8 P.M.	9 P.M.	10 P.M.
9 P.M.	10 P.M.	11 P.M.	Midnight	04 00	8 P.M.	9 P.M.	10 P.M.	11 P.M.
10 P.M.	11 P.M.	Midnight	1 A.M.	05 00	9 P.M.	10 P.M.	11 P.M.	Midnight
11 P.M.	Midnight	1 A.M.	2 A.M.	06 00	10 P.M.	11 P.M.	Midnight	1 A.M.
Midnight	1 A.M.	2 A.M.	3 A.M.	07 00	11 P.M.	Midnight	1 A.M.	2 A.M.
1 A.M.	2 A.M.	3 A.M.	4 A.M.	08 00	Midnignt	1 A.M.	2 A.M.	3 A.M.
2 A.M.	3 A.M.	4 A.M.	5 A.M.	09 00	1 A.M.	2 A.M.	3 A.M.	4 A.M.
3 A.M.	4 A.M.	5 A.M.	6 A.M.	10 00	2 A.M.	3 A.M.	4 A.M.	5 A.M.
4 A.M.	5 A.M.	6 A.M.	7 A.M.	11 00	3 A.M.	4 A.M.	5 A.M.	6 A.M.
5 A.M.	6 A.M.	7 A.M.	8 A.M.	12 00	4 A.M.	5 A.M.	6 A.M.	7 A.M.
6 A.M.	7 A.M.	8 A.M.	9 A.M.	13 00	5 A.M.	6 A.M.	7 A.M.	8 A.M.
7 A.M.	8 A.M.	9 A.M.	10 A.M.	14 00	6 A.M.	7 A.M.	8 A.M.	9 A.M.
8 A.M.	9 A.M.	10 A.M.	11 A.M.	15 00	7 A.M.	8 A.M.	9 A.M.	10 A.M.
9 A.M.	10 A.M.	11 A.M.	Noon	16 00	8 A.M.	9 A.M.	10 A.M.	11 A.M.
10 A.M.	11 A.M.	Noon	1 P.M.	17 00	9 A.M.	10 A.M.	11 A.M.	Noon
11 A.M.	Noon	1 P.M.	2 P.M.	18 00	10 A.M.	11 A.M.	Noon	1 P.M.
Noon	1 P.M.	2 P.M.	3 P.M.	19 00	11 A.M.	Noon	1 P.M.	2 P.M.
1 P.M.	2 P.M.	3 P.M.	4 P.M.	20 00	Noon	1 P.M.	2 P.M.	3 P.M.
2 P.M.	3 P.M.	4 P.M.	5 P.M.	21 00	1 P.M.	2 P.M.	3 P.M.	4 P.M.
3 P.M.	4 P.M.	5 P.M.	6 P.M.	22 00	2 P.M.	3 P.M.	4 P.M.	5 P.M.
4 P.M.	5 P.M.	6 P.M.	7 P.M.	23 00	3 P.M.	4 P.M.	5 P.M.	6 P.M.

MORE DETAILS ON DXCC

Since the American Radio Relay League's DXCC award is the granddaddy of DX awards, I thought you'd like some more information on it.

The rules on DXCC are rather complex and you absolutely must write the A.R.R.L. at 225 Main Street, Newington, Connecticut 06111 for a copy. Their telephone number is 203-666-1541. If you write them for a copy of the rules, please enclose a self addressed stamped envelope (SASE). Basically you have to submit to the A.R.R.L. at least 100 different QSL cards from at least 100 different countries that are in their current DXCC Countries List. Presently there are 318 countries plus several deleted countries for which credit can be given under certain circumstances. Your cards have to be in a specified order when you send them in and A.R.R.L. membership is required for U.S. (including U.S. possessions and Puerto Rico) and Canadian applicants. You also have to include sufficient money for the return of the cards to you.

You can get your DXCC award endorsed for Phone-Only, CW-Only, Mixed, RTTY-Only, 160 Meters-Only, and for Satellite-Only. Additionally, endorsement stickers are available when you accumulate another block of 25 countries. After you have confirmed 309 countries you are eligible for admission to the Honor Roll. Folks, there aren't many Honor Roll members around and they are die-hard DXer's and the kings/queens of DX. It takes several years to get to Honor Roll status and many attempt it but few make it.

Once again, there are several rules that have to be met in order to qualify for DXCC and if you'll write the A.R.R.L., they'll be happy to send you a copy of the rules and an application form.

ANOTHER DX BULLETIN

There's another DX bulletin which comes out weekly that seems quite good and worth the investment. It's called **QRZ DX** and is available from QRZ Incorporated, P.O. Box 494, Howe, Texas 75059. At the time of this writing (December, 1981) the cost is $28.00 for a 60 week subscription. They mail their bulletin to you *via 1st Class mail* every week and give you DX information, QSL data, status of the sunspot activity, etc. Quite a handy little blurb. Dick Bash - KL7IHP met with the guys that put this together down in the Dallas area and they are working real hard to put out an accurate and up-to-date bulletin. They have a "hot-line" that hams can call in on and leave a message about DX that's on the bands. If you decide to give them a try, tell them Dick & I sent you!

Stuart Gregg III - NF4Z
P.O. Box 6419
Hilton Head Island, SC 29928
December 10, 1981

FEEDBACK

Please list below any suggestions you have that we should include in the 2nd edition of *The Complete Idiot's Guide to DX*. We would also like your comments about this edition too. Send your comments to:

Stuart Gregg III - NF4Z
P.O. Box 6419
Hilton Head, SC 29929

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